

# The Chemical Age

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**NOTICES:**—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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## British Dyestuffs Policy

THE annual address of Mr. Sutcliffe Smith to the Colour Users' Association has come to be regarded as one of the most important pronouncements of the year on the subject of the British Dyestuffs industry. The statement he made at the annual meeting in Manchester last week was even more notable than usual in its comprehensive survey of the position and prospects of the industry and in the frankness with which the more delicate or controversial issues were approached. Without any hesitation Mr. Sutcliffe Smith went straight to the fundamental question whether the Dyestuffs (Import Regulation) Act of 1920 is to be renewed when the term of years for which it was passed runs out. It was, as he pointed out, specifically provided in the Act itself that its provisions should continue in force for a period of ten years "and no longer." These three words seem definitely to preclude the idea of renewal, and there can be no doubt that they were intended to reassure Parliament that the Act was intended, not as a means of permanent protection for dyestuffs manufacture, but as guaranteeing partial protection over a sufficiently long period to give the new industry a chance of getting on its feet.

Everyone is agreed that in the period the Act has been in operation amazing progress has been made in dyestuffs manufacture, whether one considers the range and quality of the products, or the technical, research, and commercial organisation brought into existence. Everyone is agreed also that some day the industry ought to be able to stand against world competition without artificial aid. The problem is whether, at the end of the remaining three years, the industry will have reached a stage when the Act is no longer necessary. The manufacturers will probably argue strongly for its renewal, on the ground that the establishment of the industry has been a costly business and that they are entitled to some further relief until they receive a fair return; the merchants, who have never really accepted the Act, and whose interests are wholly against protective measures, will vigorously demand its decease. Between them stands the large class of actual colour users, whose attitude will go far to decide the issue. Mr. Sutcliffe Smith, it will be noted, does not finally commit himself, though it is not difficult to see the direction of his own sympathies. What he does is to make the practical suggestion that in good time before the expiration of the Act makers and users should confer together and be in a position to make a united recommendation on the subject to the Government. It is a thoroughly sensible and practical suggestion, and what these parties agree upon will in all probability be accepted.

On the subject of dyestuff prices Mr. Sutcliffe Smith is already looking forward to a further reduction. The previous reduction of the price factor from  $2\frac{1}{2}$  to 2-times pre-war was accepted by the makers, but with a feeling that they might have been allowed a little more grace. Those who thought that revision premature will certainly think similarly of a suggested further reduction. Mr. Smith's theory, however, is that the manufacturers should combine forces with a view to more economic production, restricting the present diversity of colours, and following a general policy designed in the interests of the entire industry. Although the increase in British dyestuffs production has been remarkable in the last few years, it must be noted that a considerable portion of the trade, even with the Dyestuffs Act in operation, still goes to foreign producers. The value of German imports, for example, has advanced from £197,466 in 1921 to £710,938 in 1927. Against this, the value of Swiss imports has declined from £763,299 in 1921 to £306,595 in 1927, and miscellaneous foreign imports have decreased from £82,056 in 1921 to £16,480 in 1927. Taking the total value of foreign dyestuffs imported under licence, the value is almost identical for the years 1921 to 1927, the former figure being £1,042,821 and the latter £1,034,013, though in the same period the quantity

imported has nearly doubled. These figures make it clear that in certain lines Germany can still command a substantial trade in dyestuffs with this country, in competition with home makers. There is room for improvement here. Another field where there is scope for trade extension is the export market. The real remedy appears to be so to improve production methods here that home users will get their supplies from British makers and that home products will secure a larger share of the export trade, in which both Germany and Switzerland seem to be holding their own.

### The Chemistry of Wine Making

THE age of pilgrimages is not yet over ; and in a blue-covered book of prosaic appearance, printed and published by H.M. Stationery Office, at the price of one shilling net, and entitled *The Chemistry of Wine Making : A Report on Oenological Research* (pp. 57), Professor J. T. Hewitt, F.R.S., gives an account of a pilgrimage which must have been very interesting. Among the numerous matters with which the Empire Marketing Board concerns itself is the production of Empire wines, and in response to requests from Empire producers for information on recent developments in wine-making, the Board invited Professor Hewitt to visit France, Germany and Algiers and to prepare a report on the subject. As a result of his visits to numerous wineries and oenological stations, Professor Hewitt has produced a very comprehensive and readable report, in which the various aspects of the subject are dealt with under the following headings : the vine (influence of soil and climate) ; composition of grapes and must ; yeast and the fermentation process ; standard processes of manufacture of red, white, and fortified and sparkling wines ; improvements in manufacture ; the bouquet and flavour of wine ; and the utilisation of by-products. In appendices the author deals with Empire wines and co-ordinated research, and co-operative vinification.

Wines of numerous varieties are now produced within the Empire in South Africa and Australia, as well as in Palestine, a mandated territory. As the report states, "most of the wine is sound in quality, usually palatable, and occasionally of very high quality ; the mere fact that a certain proportion of the wine is of lower standard shows that something might be done for its improvement." The centralisation of effort which will be brought about by the Empire Marketing Board will be in itself an immense step forward, and there can be no doubt that co-ordinated research on the subject will lead to very valuable results. Professor Hewitt's report is written not only with learning, but with enthusiasm and feeling. "The wines of Champagne," says the author, "owe their extreme distinction to the chalk in which they (the vines) grow. Chalk guarantees to the Champagne brandies of Cognac an inimitable perfume, and this perfume is the more pronounced the greater the calcareous content of the soil." The recovery of by-products is an interesting and important branch of the industry, which would probably benefit greatly by chemical investigation. The E.M.B. and Professor Hewitt alike deserve congratulation on the production of this monograph.

### The American Nitrogen Industry

THE other day we had an opportunity of putting to a well-known diplomatist who probably knows as much of the inside of American politics as any single person a question as to the meaning of President Coolidge's refusal to sign the bill empowering the United States Government to engage directly in "fixed nitrogen" manufacture. His reply was that it had nothing to do with national defence or international interests ; it simply expressed the President's opposition—widely shared throughout the United States—against the State engaging in the nitrogen or any other business in competition with private firms, and the circumstances in this case make the President's action effective for about two years.

This result will be warmly welcomed by the chemical industry of the United States whose representatives have denounced in strong terms both the policy of manufacturing complete fertilisers, which was first put forward, and the policy of limiting production to "fixed nitrogen," which was later substituted. The nitrogen fixation plant erected by the United States Government at Muscle Shoals during the war period, with the object of producing nitrogen for purposes of national defence, is thus left in a very uncertain state. The scheme has suffered from the outset from the lack of a clear policy. The idea of disposing of the plant to private interests, as Billingham was disposed of to Brunner Mond and Co., has not materialised ; the alternative plan of the plant being worked by the State would have excited furious opposition, firstly on the general ground of objection to direct State trading, and secondly on the ground that large sums have now been invested by private firms in the nitrogen industry and that these enterprises would be prejudicially affected by State competition. The result is that the United States Government have a gigantic plant on their hands for which they cannot find a suitable purchaser and which they cannot for some time at least work themselves. Muscle Shoals, in fact, must be something of a nightmare to the people responsible for the scheme. In this country, we might have been landed in a similar difficulty, but the sale of Billingham to Brunner Mond and Co. has solved the British problem in a way that our American friends must envy.

### Books Received

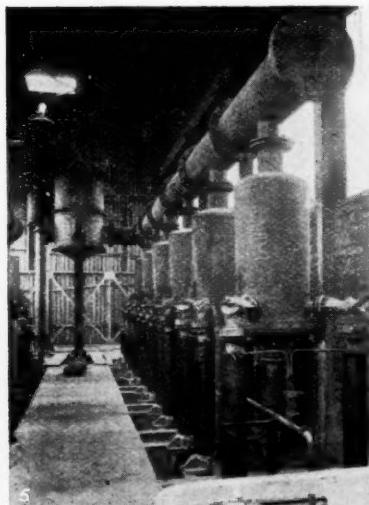
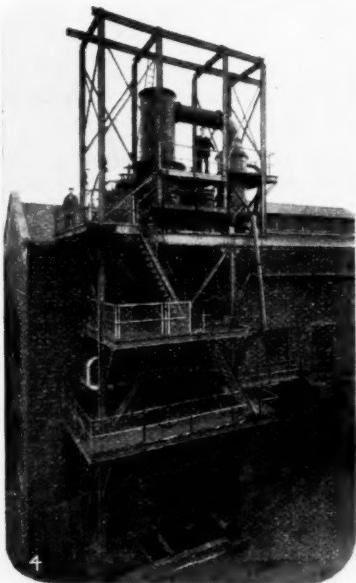
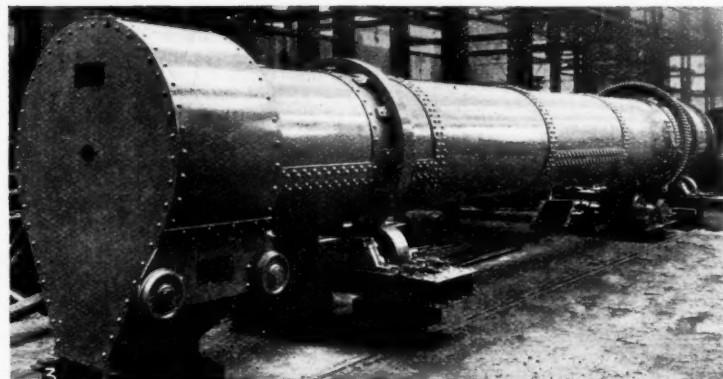
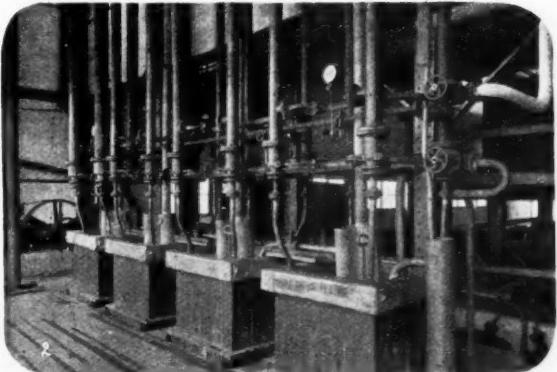
PHOTOCHEMICAL PROCESSES. By George B. Kistiakowsky. New York : The Chemical Catalog Co., Inc. Pp. 270. \$5.50.  
THE CHEMIST'S YEAR BOOK, 1928. Edited by F. W. Atack. Manchester : Sherratt and Hughes. Pp. 1174. 21s.  
MECHANOCHMISTRY AND THE COLLOID MILL. By Pierce M. Travers. New York : The Chemical Catalog Co., Inc. Pp. 191.

### The Calendar

July			
9 & 10	Merchandise Marks Inquiry : Pumps. 11.30 a.m. on Monday, July 9, and 10.30 a.m. on Tuesday, July 10.		Board of Trade, Great George Street, London.
9-14	Royal Photographic Society : Interna- tional Congress of Photography.		London.
10	University College, Nottingham : Opening of the New University College Buildings.		Nottingham.
12	Institute of Physics : "Physics in Photography." Dr. C. E. Kenneth Mees. 8 p.m.		Institution of Elec- trical Engineers, Savoy Place, London.

### Samples of Modern Chemical Engineering Plant

(By the Kestner Evaporator and Engineering Co.)



1. BATTERY OF PATENT ACID EVAPORATORS (SHOWING SEPARATORS). 2. BATTERY OF PATENT ACID EVAPORATORS (LOWER HALF OF INSTALLATION IN PHOTOGRAPH 1). 3. ROTARY CALCINER FOR DEALING WITH CONCENTRATED LIQUOR LEAVING EVAPORATOR. 4. PATENT SALTING TYPE EVAPORATOR, WORKING UNDER VACUUM. 5. BATTERY OF PATENT ACID EVAPORATORS (SHOWING SEPARATORS). 6. PATENT DOUBLE-EFFECT CLIMBING FILM EVAPORATOR, NON-VACUUM.

## A Rapid-Working Tinning Compound Interesting Industrial Possibilities

FOR a short time past, there has been on the market a new flux for use in tinning metals. It is a white powder, known as Soldo Patent Tinning Compound, and is supplied by the Soldo Co., of Sicilian House, Southampton Row, London. It is non-acid, and consists of a powder containing a combination of fluxes and metal, free from both lead and mercury. All metals except aluminum and low-grade cast iron, whether rusty, corroded, greasy, painted or enamelled, with no previous

"For comparison with tinning by an ordinary workshop method portions of the same samples of phosphor-bronze, manganese-bronze and steel (Nos. 1, 3 and 4 above) were tinned by heating and dipping into molten tin under zinc chloride for 30-60 seconds. The effectiveness of the tinning has been judged by microscopic examination of sections through lap joints. These were made by tinning the two surfaces to be jointed in the one case with Soldo and in the other by dipping into molten tin as described above. The surfaces were then placed in contact and held together in a vice or by means of pliers. The operation of making a joint employing Soldo was at least as quick if not quicker than by the ordinary method described."

The report then gives a series of notes on the joints made, illustrated by photomicrographs. In the case of strips of phosphor bronze joined together, the report states that the interpenetration was approximately twice as great in the case of the strips tinned with Soldo as in that coated by ordinary methods. In the case of "Ohmal" (which is usually hard-soldered because soft soldered joints are unreliable apparently by reason of ineffective "tinning") interpenetration also occurred.

Especially interesting were the results with manganese bronze. Figures 1 and 2 indicate the results obtained by joining strips of this alloy by the ordinary method and by the Soldo method respectively. Fig. 1, at 600 diameters, shows "the interpenetration obtained by the ordinary tinning

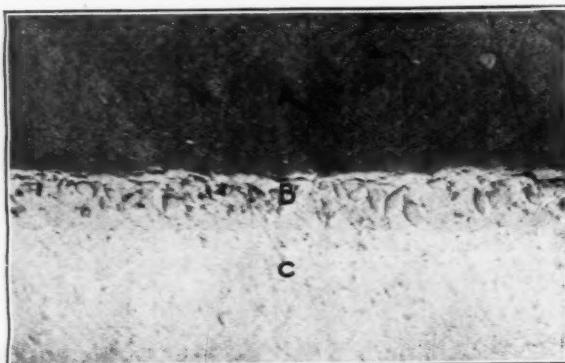


FIG. 1.—A : MANGANESE BRONZE.—B : COPPER-TIN ALLOY.  
C : TIN LAYER.

preparation whatsoever, beyond the application of heat and Soldo alone, can be permanently and effectively tinned; hence all time and labour in preparatory cleaning by pickling, sandblasting, etc., is done away with.

In order to test its claims, the Soldo Co. carried out a demonstration at the National Physical Laboratory before the laboratory staff, and the National Physical Laboratory subsequently issued a report on the tests made. The metals tinned were the following: (1) phosphor bronze (commercial rolled strip); (2) "Ohmal"; (3) manganese bronze; (4) steel (machine bar flat); (5) cast iron (machined); and (6) rusty steel (machined and subsequently rusted on a scrap heap).

"The method employed in using the Soldo compound," states the N.P.L. report, "consisted in heating the metal in a gas flame to a temperature judged sufficient. It was then removed and Soldo sprinkled over the area to be tinned.

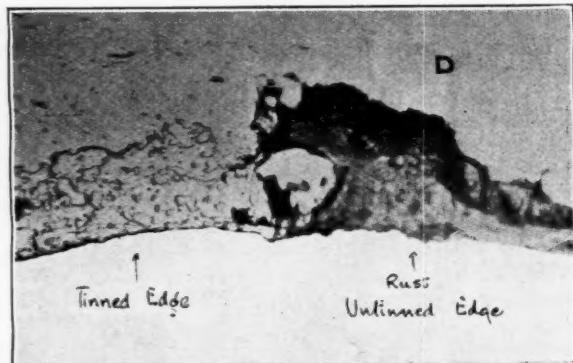


FIG. 3.—RUSTY STEEL TINNED BY SOLDO.

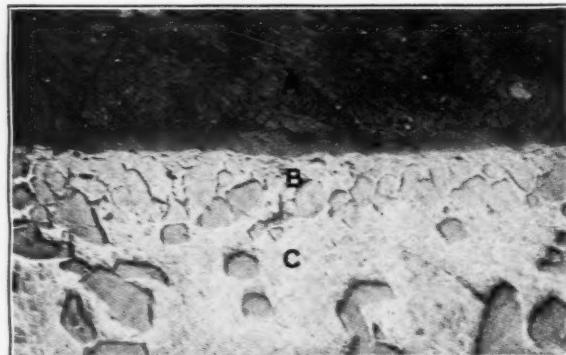


FIG. 2.—A : MANGANESE BRONZE.—B : COPPER-TIN ALLOY.  
C : TIN.

The powder evolved fumes, appeared to melt, and rapidly produced a continuous "tinned" surface. One application was sufficient with the metals and surfaces Nos. 1-5 above. With the rusty steel successful tinning was obtained after two or three applications of "Soldo," assisted by rubbing with a soldering iron. Rusty cast iron was also tinned successfully after similar treatment.

process—the upper portion of the field consists of manganese bronze and the lower portion is the tinned layer. Along the boundary a number of crystals of a copper-tin alloy can be seen; the distinction is much more apparent in the actual specimen, owing to a difference in colour, than in the photograph. Fig. 2, also at 600, shows the junction in the case of manganese bronze tinned with Soldo, where the structure is similar to that of Fig. 1, but diffusion has proceeded to an extent approximately 4 or 5 times as great."

As regards rusty cast iron, the report indicates that it was very successfully tinned with Soldo, the rust being effectively removed. With rusty steel, similarly good results are obtained. Fig. 3 shows a rusty steel treated with Soldo, the section being prepared so as to include side by side rusted (untinned) and tinned areas respectively. The upper portion of the field shows the steel, and the central band rust (dark on the right), and tinned surface (half tone on the left) respectively. In every part of the section where Soldo was applied good contact was formed with the steel.

### Conclusions

The conclusions given in the report deserve quotation:—"By means of Soldo compound the following metals examined have been effectively and readily 'tinned'—phosphor bronze, manganese bronze, steel, cast iron, ohmal (nickel 3.5, manganese 9.0, copper 87.5 per cent.) Microscopic examination of joints has shown interpenetration between metal and tin in all cases. With manganese bronze the extent of the

interpenetration has been observed to be 4 to 5 times, and with phosphor bronze approximately twice as great as when an ordinary workshop method of tinning was employed.

"With steel, the relative extents of interpenetration using Soldo and an ordinary workshop method respectively, were approximately equal. Effective tinning of severely rusted steel and rusty cast iron has also been accomplished by means of Soldo, the rust being removed and interpenetration between tin and steel or iron obtained, illustrating in a marked manner the cleansing properties of the compound."

#### Method

The method employed in tinning large surfaces by means of Soldo is to heat these, with a blow-lamp or otherwise, sufficiently hot so that when Soldo is sprinkled on it melts readily, and then to follow over with a hack-saw blade or thin piece of wire, then wipe, and a perfectly tinned surface is the result, the rust and dross having come to the top in a brown scum.

It may be added that Soldo is already used by a large number of firms, including some in the chemical industry.

## Two Deaths from Industrial Silicosis

### Scouring Powder Causes Disease

At the Battersea Coroner's Court, on Friday, June 29, before Mr. Ingleby Oddie, the inquests were resumed and concluded on Ethel Violet Waite, aged 17, and Clara Winifred Deller, aged 18, of Ush Road, Battersea, S.W., both of whom were employed as packers by the firm of Poli-Varn, Ltd., polish manufacturers, of Grove Works, Wandsworth, S.W. The inquest on Miss Waite had been adjourned by the Coroner for microscopic examination of certain organs, and in the meantime Miss Deller died. At the previous hearing it was said by Mrs. Waite that her daughter went to work at Poli-Varn two years and nine months ago. She was perfectly healthy right up to December of last year, when she complained of a dry cough, and pains in her chest. Dr. MacCormac, medical superintendent at St. James's Infirmary, said that deceased was admitted on the diagnosis of pulmonary tuberculosis, and she died on June 4, but after a post-mortem had been taken, it was found that death was due to chronic industrial silicosis, and in his opinion due to dust of occupational origin. Evidence was also given by Mr. Frank William Gilder, secretary and director of Poli-Varn, Ltd., who said that one of their manufactures was "Scourine"; he would not disclose what it was made of, as it was a trade secret, but the silica part was of quartz and similar stones. The girls' duty was to fill containers with this powder, "Scourine," which was done from a filling machine, and any dust that escaped during the process was carried away by an exhaust fan, so that it would prevent the girls inhaling the fine dust. The firm provided masks for the workpeople some years ago, but they found that the employees would not wear them.

At the inquest on Friday, June 29, Dr. George McDonald, tuberculosis officer for the Borough of Battersea, said he first saw Miss Waite on April 27, and Miss Deller on May 3, and they both practically complained of the same symptoms, bleeding at the nose, shortness of breath, loss of weight and appetite. There was a slight difference between the girls' symptoms, and after hearing the history of the cases, he concluded that death was due to silicosis, not tuberculosis. He had dealt with four other cases of girls who had died through tuberculosis who were employed at Poli-Varn.

Sir Bernard Spilsbury gave evidence, and said he was present at the post-mortem on Miss Deller, and he attributed her death to disease of the heart muscles, in consequence of chronic inflammation of the lungs and glands, set up by silica, a condition known as silicosis.

Further evidence was given by Mr. Harry Varney, the Inspector of Factories, who said that when he first visited the workshop of Poli-Varn, Ltd., the girls were covered on the face, hands, and hair with fine dust. He made several suggestions to the firm to prevent this, by installing a filling and mixing machine, and putting in exhaust fans, and these were all fitted.

The Coroner in addressing the jury said the whole matter was brought to light by Dr. McDonald, who recognised that the girl was not suffering from tuberculosis, but from silicosis, and there was very little doubt that this was the cause of the death of all six girls. They would have to find whether the firm was in any way responsible for the happenings.

The jury returned a verdict of "Death from Misadventure."

## Colour Users and Dyestuffs Act

### Mr. Sutcliffe Smith's Views

THE feature of the annual meeting in Manchester on Friday, June 29, of the Colour Users' Association was a comprehensive review of the situation by the chairman, Mr. H. Sutcliffe Smith, whose address will appear in full in our Monthly Dyestuffs Supplement next week.

Mr. Smith stated that notwithstanding some complaints by users, particularly in regard to the prices of colours, the British dye-making industry continued to make steady progress and Great Britain was now taking its place among the leading manufacturers of fast dyestuffs and colours for artificial silk.

If the country was to retain its industrial supremacy and to keep in the forefront of progress in the industrial world, particularly on the engineering and chemical sides, it was absolutely essential that the dyestuffs manufacturing industry should be maintained on an adequate scale.

The time had arrived for a closer merging together of the British dyestuff manufacturing interests. There was far too much overlapping, and if the industry were "rationalised" greater progress could be made in the standardisation of dyes and the introduction of new colours.

Referring to the Dyestuffs (Import Regulations) Act, due to expire in 1930, he said he could not see that colour users in this country in fairness could be called on to acquiesce in the extension of a prohibition act for the fostering of the dye-making industry. Their acquiescence in the Act had already cost them millions of pounds above the general level of wholesale prices ruling in this country and abroad. It was, therefore, imperative that the utmost use should be made of the unexpired period of the Act by the British makers to fit themselves to be in a position to meet world competition.

The time was limited. It was opportune for the two interested parties—the dye-makers and the users—to get together in a round table conference, with a view to coming to an agreement as to the best method of meeting the situation.

### The Question of Prices

On the question of prices, he said the dye-users were quite prepared to give preference to the British makers and to assist them for the present by paying a slightly higher price, but that preference must not be exaggerated. In certain types of colour this country was paying a much higher price than its foreign competitors, particularly for the new type of fast colours. The world capacity to produce dyes was much greater than the off-take, and this surplus of production had tended to create a very severe competition in foreign markets.

Mr. E. Carr Deakin, in seconding the adoption of the report and accounts, emphasised the importance of the point that competitive prices for colours quoted by foreigners should be shown only to the chairman and neutral members of the Licensing Committee. He thought that was a procedure that ought to have been adopted years ago, and he was glad to hear that the point was to be pressed.

Mr. A. Drew moved a hearty vote of thanks to the chairman. As one of the oldest members of the Council he was justified in saying that the chairman had done wonders for the colour users, and his speech showed the thoroughness with which he discharged the duties of his office.

Mr. W. E. Kay, in seconding, said that there was one part of the chairman's speech that indicated how valuable his services were. His speech was very largely occupied with looking forward. What struck him particularly was his reference to the Dyestuffs (Importation Regulation) Act. He had rendered special service to the industry by his references to that Act and the prospects of its renewal or otherwise. That Act, they were told, was to be for a period of ten years and no longer. But they knew that a certain section of the Safeguarding of Industries Act was to be for no longer than five years, yet it was re-enacted for a period of ten years. Colour users must be on their guard against another similar Act being passed at the expiry of the Dyestuffs Act.

The resolution was carried with acclamation.

The chairman, responding, said that as to Mr. Kay's point, he thought it better to look ahead and be prepared, instead of running the risk of being suddenly faced by a crisis when the Act expired. They ought to get together beforehand and consider what they should do. At the same time there was a definite desire among colour users that that Act should come to an end at its expiry.

## Germany's Steps to Make Coal Pay

### Utilisation of By-Products

A SIGNIFICANT development in the German coal industry recently has been the remarkable attention paid by coal-owners to the development of coal by-products. Recent improvements in the methods of firing ovens have permitted the inferior grades of coal and gas to be profitably utilised, and drastic economies in the industry to be effected. Coke-oven gas suitable for conversion into a wide range of by-products has been released, and improvements in gas-pipe manufacture and methods of joining have made it possible to distribute this gas to a distance of 200 to 300 miles from the coke ovens. Side by side with these developments German coal owners are expanding and improving their chemical plants in order to make fullest commercial use of the by-products, which are being released, and particular activity is taking place in the production of synthetic nitrogenous fertilisers.

Virtually all coal and coke producers of the Ruhr have now banded themselves together in a company called "The Ruhr-Gas Corporation," which is financed by Dillon, Read and Co., the American bankers, and has been formed to make fullest commercial utilisation of the coke oven gas produced in the Ruhr. It is estimated that this surplus coke-oven gas is worth about 9 per cent. of the total value of the coke plant production. The coke itself is worth about 75 per cent. of the total value, while tar, nitrogen, benzole and surplus gases each represent about 6 per cent. of the total values. It is stated that on the 21 million tons of coke, which the companies associated in the Ruhr Gas Corporation produce annually, a saving of at least 3 marks per ton will be effected on production costs through utilisation of by-products. This represents a total saving of about £3,150,000 per annum.

While the Ruhr Gas Corporation is mostly concerned with the distribution of gas, and has already about 160 miles of pipe-line laid in the Ruhr, the company is also helping individual coke-oven owners in installing plant for cleaning and compressing the gas. The coke-gas contains both sulphur and naphthalene. Removal of the latter is important because of its clogging effect on the line when sent under high pressure. Washing out naphthalene is done by a recent Stinnes process which consists in passing the gas after compression through a bath of oil heated to 180° C.

Long-distance piping of coke-gas has been unsatisfactory in the past owing to heavy leakage. This is now being reduced through improvements in pipe and welding methods. Pipes of gas welded steel are about 48 feet in length and are expanded at one end so as to form a ball for insertion of the spigot of the joining pipe. All joints are gas welded. The pipe is wrapped with jute and covered with asphalt; thus wastage which under old piping methods so often was as high as 30 per cent. is now reduced to a trifle.

Supplying cheaper gas to the country will stimulate home use. Germany will probably double home consumption in the next few years. Assurance of an ample, steady and even quantity of gas may well increase German industry's consumption several times over within the next decade.

## Kodak Research Laboratory for London

IT is announced that Kodak, Ltd. is to establish a research laboratory in London. The Eastman Kodak Research Laboratory at Rochester, N.Y., is recognised as one of the foremost in the world, and has been responsible for many important scientific and industrial developments. It is under the directorship of Dr. C. E. K. Mees. The London laboratory will be developed on similar lines, as part of the Kodak factory organisation at Harrow, and will be under the direction of Dr. Walter Clark. Dr. Clark was educated at University College, London. He took his degree as Bachelor of Science (1921) with honours in chemistry; Master of Science (1922); and Doctor of Philosophy (1924). He is also a Fellow of the Institute of Chemistry and Fellow of the Royal Photographic Society. Dr. Walter Clark was for five years with the British Photographic Research Association, and later a member of the staff of the Science Museum, South Kensington. He is honorary secretary of the Seventh International Congress of Photography, which is being held in London, July 9-14.

## "C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

104. (Activated Carbon).—A correspondent is anxious to obtain the following information regarding activated carbon: (1) Is there a good and improving demand for it? (2) Is it chiefly used by sugar refiners and margarine makers? (3) The selling price per ton? (4) From what is it usually made?

## Institution of Chemical Engineers Announcements

A DEGREE course in chemical engineering is now established at Glasgow University, and the final examination was held recently for the first time. Courses in chemical engineering will begin next October at King's College, London. The syllabus, which has been designed to meet the requirements of students who have followed either the chemical or engineering curriculum of the College, has been prepared with care upon a broad basis. The direction of the course, the lectures and laboratory work of a purely chemical engineering character will be undertaken by Mr. H. W. Cremier, M.Sc., a Member of the Institution. The programme for the winter session of the Institution is taking shape and will range over a wide field of subjects. On Friday, October 26, in the Institution of Civil Engineers, Professor A. L. Mellanby, of Glasgow, will deliver a public lecture on "Fluid Jets and Their Practical Applications," and in November Dr. Paul Klein, of Budapest, will give a lecture on "The Anode Process for Deposition of Rubber." In December a three-day conference of the Institution on the important subject of "Drying" will be held. Papers have been promised on the following divisions of the subject:—Vacuum dryers, rotary dryers, drying of agricultural products, drying of textiles, drying and seasoning of timber, coal drying, drying of coal gas, film and spray drying, and drying by pressure. One or two further papers may be added, if found desirable. Early in the New Year a public lecture will be delivered by Professor J. W. Cobb, of the University of Leeds, and at subsequent meetings papers will be presented on chromium deposition, magnesium, fatigue in metals, and research on the internal-combustion engine.

## Standard Specifications for Road Tar

FOR a considerable time no British Standards for road tars have been in existence, those first issued in 1916 having been withdrawn when the Ministry of Transport published their specifications, which were a revision of the original Road Board specifications. Recently the Ministry of Transport brought to the notice of the British Engineering Standards Association the desirability of remedying this position and recognising as British standards the specifications officially adopted by the Ministry and with which all local authorities are familiar. The proposal was referred to the appropriate technical committee of the B.E.S.A., and Specification No. 76, Part 1-1928, for Tars (Nos. 1 and 2) for Road Purposes, just published, is the outcome. It contains the Specifications Nos. 3 (a) and 3 (b) of the Roads Department of the Ministry of Transport issued as British standards. The specification deals with the preparation, properties, testing, and analytical data of the tar. In an appendix the methods of testing are given in detail, while a second appendix gives the standard form on which the analyst's report should be made. Copies of the specification may be obtained from the Publications Department of the British Engineering Standards Association, 28, Victoria Street, Westminster, London, S.W.1, price 2s. 2d. post free.

## Institute of Chemistry Examinations

THE next examinations of the Institute of Chemistry will be held at the Institute on the following dates: For the Associate-ship, from September 17 to 22; for the Fellowship, from September 24 to 29. The last date for entry is Monday, July 16. Regulations and forms of application can be obtained from the Registrar of the Institute, 30, Russell Square, London, W.C.1.

## Training of Technical Workers

**Address by Dr. Freeth**

"I THINK it is impossible to over-rate the national importance of contentment in employment. If a man likes his work and is interested in it, he is a far better citizen than if he is merely performing what is to him daily drudgery." In these words Dr. Francis Freeth, F.R.S., speaking on Friday, June 29, on behalf of Lord Melchett (president) to the annual meeting of the Association of Technical Institutions, at Cardiff, emphasised the value of technical education in industry and in national life as a whole.

Dr. Freeth, expressing Lord Melchett's regret at his unavoidable absence, referred to the tremendous increase in the number of matters with which Lord Melchett has been concerned within the past twelve months. He referred particularly to the Conference on Industrial Reorganisation and Industrial Relations, the possibilities of which could not be over-estimated. The technical institutions of Great Britain had played, and were playing, a very important part in the life of the community. Their path, however, was beset with many difficulties. Technology was, of course, far older than science or than education in the modern sense of the word. The early arts—metal working, pottery, glass making, etc.—were handed on from father to son and from master to pupil throughout the generations. It was fair to assume that such instruction was conveyed more or less traditionally, and that there was little or no attempt to analyse the operations involved or the reasons of their sequence. The teachings of the traditional methods of work were very frequently right, and it often happened that modern science could only give a logical explanation of what was previously accepted as a fact. Such methods of education, however, were totally inadequate to meet the needs of the modern industrial world.

The dawn of modern science, which might be assigned to the beginning of the nineteenth century, was responsible for the conversion of Great Britain from an agricultural country into a manufacturing one. New industries demanding a skill and knowledge on the part of the worker far greater than he had been expected to display before were among the causes which called technical institutions into being. It would be a fair parallel to regard technical training as a consolidation of the advances of science for industrial practice.

One of the most valuable services which the technical colleges could render to the community was not only to train workers who could hold their own technically with those of any in the world, but, what was far more important, to promote in each of the students a really healthy creative intelligence in his job and pride in his particular sphere of operations. There were few employments in technical life which could not, in the proper hands, be made to yield interest in some form or another.

### Position in the Chemical Industry

Dr. Freeth referred to the manner in which the constituent firms of Imperial Chemical Industries had always encouraged technical education among the workers. As an example, he said that Brunner, Mond and Co. had just erected a great new research laboratory, and they were now launching out on a scale the magnitude of which was of a different order from anything they had previously contemplated. At the present moment the chemical industry was undergoing a rapid expansion, and was enlarging its horizon in every direction. The backbone of the industry—the production of heavy chemicals such as soda ash, caustic soda and chlorine—that is to say, the heavy chemical industry of Great Britain, had always maintained its supremacy in the face of foreign competitors, and was now in a stronger position than it ever had been. The latest, and probably eventually the greatest venture, the product of fertilisers from the air, had now assumed gigantic proportions, and as yet was only in its infancy. It was a veritable triumph of British chemistry, and particularly of British engineering.

Dealing with technical training in the chemical industry, Dr. Freeth gave as an example the pattern makers, skilled craftsmen, and tradesmen of all sorts—that silent, unrecognised efficient army without which the industry could not last three months. He emphasised the vast importance of instruments of every sort in modern works and factories. Modern industry depended more and more on its instruments as it

became more quantitative and less empirical. Dr. Freeth paid a tribute to the vigorous and efficient technical schools of Cardiff, and in conclusion said that international competition had never been keener than it was at the present time. Our industrial rivals, especially on the Continent, had made tremendous efforts in the direction of technical education. It was not too much to say that industry in this country looked to the technical colleges for a great measure of assistance in that industrial revival of which they saw signs on all sides.

## Chemical Matters in Parliament

### Unemployed in Chemical Industry

In reply to Mr. Kelly (House of Commons, June 28), Mr. Betterton stated that at May 21, 1928, 4,795 insured men and 723 insured women in Great Britain were recorded as unemployed in the chemical industry.

### Benzol Restrictions

Mr. Lawson asked the President of the Board of Trade (House of Commons, June 28) if he would institute an inquiry into the effect upon the coal mining industry of the recent agreement for the restriction of benzol between the benzol producers and certain oil companies. Sir Philip Cunliffe-Lister stated he would be glad if the hon. member would inform him what agreement he had in mind, and Mr. Lawson asked the President of the Board of Trade whether he was not aware that the supply of benzol did not meet the demand and that there was an agreement for restriction in output. In reply, Sir Philip Cunliffe-Lister said he knew of no agreement for a reduction in output, and from inquiries he had made he could not find out anybody who did know.

### Biochemical Research

In reply to Miss Wilkinson (House of Commons, July 2), Mr. H. Williams said that a considerable amount of biochemical research was conducted by the Department of Scientific and Industrial Research, particularly in relation to its investigation on the preservation and transport of food-stuffs. The department also made grants to a number of co-operative research associations organised by various industries to investigate their own special problems, whose work was probably of a biochemical nature. As this work was closely linked up with other work not directly biochemical, it was impossible to estimate its cost separately.

### Dead Sea Salts Concession

Captain Foxcroft (House of Commons, July 2), asked the Secretary of State for the Colonies whether H.M. Government had yet decided to whom the Dead Sea potash concession was to be granted. Mr. Amery, in reply, said that as he had already stated, it had been decided in principle to grant the concession to Major Tulloch and Mr. Novomeysky provided that suitable terms and conditions could be agreed upon and they could furnish satisfactory financial guarantees. The matter was open for tender, and several groups did apply, and this particular group was chosen. In reply to Mr. Hardie, Mr. Amery said he doubted whether this kind of speculative industry could be run by the Government.

### Appointments Vacant

ASSISTANT FOREMAN for the Acid Section of the Indian Government Cordite Factory, Aruvankadu. Candidates should have had considerable experience in an acid works, and must have had experience of sulphuric acid manufacture (chamber process).—The Secretary of the High Commissioner for India, General Department, 42, Grosvenor Gardens, London, S.W.1. July 21.

PUBLIC ANALYST for the counties of Cambridge, Huntingdon and the Isle of Ely.—The Clerk of the Cambridgeshire County Council, County Hall, Cambridge. July 11.

LECTURER IN CHEMISTRY in the University of Hong Kong.—The Secretary, Board of Education, Whitehall, London, S.W.1. July 30.

## From Week to Week

MR. E. WALLIS has joined the staff of the Asiatic Petroleum Co., Ltd.

MR. W. JOHNSON has been appointed engineer with the Rational Carbonisation Syndicate, Ltd.

DR. ABRAHAM LEARNER has taken up an appointment as research chemist to British Cyanides, Ltd., Oldbury.

MR. WASHINGTON SINGER has made a gift of £25,000 to University College, Exeter, for the building of a chemistry laboratory.

LORD MELCHETT has accepted the chairmanship of the Magadi Soda Co., Ltd., in place of Sir John Brunner, who has resigned.

BRITISH BENZOL AND COAL DISTILLATION will be making an issue of capital early next week through the Broadmount Investment Trust.

LORD STANMORE and Mr. James T. Phelan, directors of the Ship Canal Portland Cement Manufacturers, have been appointed to the board of the Dunstable Portland Cement Co.

SENSIBLE HEAT DISTILLATION, LTD., is forming a French company to operate the "L and N" coal distillation process in France. General Georges Patart has accepted the post of technical adviser to the company.

THE STANDING COMMITTEE under the Merchandise Marks Act reported on Tuesday that they were not satisfied that an Order in Council should be made that imported sheet lead and lead pipes should bear an indication of origin.

GUIDO MEISEL, an American chemist, who was sentenced to imprisonment for one year in Germany on charges of commercial espionage in seeking to obtain German chemical secrets, was released from prison on May 25, after he had paid a fine of 5,000 marks.

A NEW JAPANESE COMPANY, the Toyo Babcock Kabushiki Kaisha, was recently formed by a combination of interests between Babcock and Wilcox and the powerful Mitsui Co., and is to develop processes of low temperature carbonisation of coal and the distillation of oil from shale.

THE ROYAL TECHNICAL COLLEGE, Glasgow, in its School of Chemistry, gives, in addition to the usual courses of instruction, special courses in dyeing, bleaching, sugar manufacture, etc. There is a department of metallurgy. In addition to granting its own diploma, the College also trains students for the B.Sc. degree in applied chemistry of the University of Edinburgh, and for the A.I.C. Further details are given in our advertisement columns, p. xxiii.

THE INVENTION of two processes for the manufacture of artificial wool is reported from the Continent, and it is stated that manufacture on a commercial scale is to be commenced. M. Augustine Pellerin, a French chemist, has invented one process, which is said to utilise cellulose waste. The other process is that of Dr. G. Hartig, of Chemnitz, and negotiations for the British rights of this process are said to have been opened by a Lancashire textile firm.

MR. R. FRASER THOMSON, M.A., B.Sc., who is assistant chief chemist to Scottish Dyes, Ltd., has had conferred on him the D.Sc. degree of St. Andrews University, for a thesis entitled: "I. Developments in the Benzanthrone Colouring Matters, 1917-1927. II. Optically Active Piperazine Bases." Dr. Fraser Thomson is manager of the Carlisle factory of Scottish Dyes, Ltd., and will be chiefly remembered for his work on Caledon Jade Green.

IN THEIR ANNUAL REPORT, the Birmingham Corporation Gas Committee state that the return from the sale of residual products by the gas undertaking showed a marked reduction, notwithstanding the increased quantities available for sale, both coke and ammoniacal liquor being very much reduced in value during the year. Tar was the only residual to yield a higher return last year; unfortunately, the prevailing conditions indicated that the revenue from this product would be considerably reduced during the current year. The amount of coal carbonised was 827,005 tons against 817,076 in 1925-26. Coke and breeze sold amounted to £293,081 against £422,274; tar sold to £180,747 against £129,257; and ammoniacal liquor to £17,317 against £33,317. Sales of spent oxide realised £12,297.

ARTIFICIAL SILK NEWS.—The French Rhodiaséta Co. is stated to be negotiating with a British artificial silk firm for the erection of an English plant for the production of acetate yarn under Rhodiaséta patents.—A report from Manchester states that a mill for the manufacture of artificial silk fabrics is to be erected at Bamber Bridge, near Preston.—According to a Bucharest paper a company has been formed by Glanzstoff in conjunction with the Banca Romaneasca for the manufacture of artificial silk in Roumania.—The capital of the Société Française de Tubize is to be raised from frs. 115,000,000 to frs. 145,000,000.—The German artificial silk firm of Bemberg has a leading financial interest in a new company entitled British Bemberg, Ltd., which has been formed to produce cuprammonium silks in this country.—Oceana Consolidated has taken a big interest in Kirklees, Ltd., which was formed to acquire the business of the Kirklees Artificial Silk Manufacturing Co., incorporated in November, 1925.

DR. JAMES BELL, lecturer in chemistry at Trinity College, Dublin, was married last week to Miss Peggy Hanna.

MR. J. BINNS has been appointed a technical engineer with Imperial Chemical Industries, Ltd., at Runcorn.

MR. W. V. COLES has accepted the appointment of assistant manager with the Non-Inflammable Film Co., Ltd.

THE BRITISH REFRactories RESEARCH ASSOCIATION has removed its offices to 22, Northumberland Avenue, London, W.C.2.

RECENT WILLS INCLUDE: Mr. A. Kling, F.I.C., of Tunbridge Wells, for many years research chemist with Brunner, Mond and Co., £15,146 (net personalty £14,524).

A SOAP FACTORY IN FULL PRODUCTION, 20 miles from London, with modern plant, having a present output of over 35 tons per week, is advertised for sale on p. xxiii.

THE ROYAL COMMISSIONERS for the Exhibition of 1851 have appointed Mr. Bernard Cavanagh to a senior studentship for 1928, for research in physical and analytical chemistry.

ITALY IMPORTED 2,350 metric tons of dyes and paints from Germany last year, out of total imports of 6,624 metric tons. In 1913, 7,992 metric tons out of 11,926 metric tons were imported from Germany.

MR. WILLIAM COWEN, of Burnley, who has been awarded the degree of M.Sc. (Manchester) for a thesis on the subject of surge tanks, has accepted a position as research engineer to Synthetic Ammonia and Nitrates, Ltd.

STEPS HAVE BEEN TAKEN with a view to the amalgamation of three Scottish firms engaged in the dyeing and finished trades. The firms are William Fulton and Sons, Paisley; James M'Lardie and Sons, Paisley; and Brown and Adam, Pollokshaws.

THE SUBSCRIPTION LIST was opened on Tuesday of an issue of 3,700,000 preferred ordinary shares of 5s. and 7,400,000 deferred shares of 1s. each in Scottish Amalgamated Silks, Ltd. Dr. Otto Ruff, consulting chemist and director of the Technical College, Breslau, has been appointed a technical adviser.

THE BIRMINGHAM CITY COUNCIL at a recent meeting decided to make an annual grant to the University of Birmingham of an amount equal to the produce of a penny rate, at present about £25,000. This rate yield will probably have an upward tendency. Hitherto the contribution by the Corporation to the University each year has been a fixed sum of £15,000.

FOUR HUNDRED AND TWELVE EMPLOYEES of the British Copper Manufacturers, Ltd., of Swansea, will receive long-service awards under the scheme adopted by Imperial Chemical Industries, Ltd. For 25 years' service a silver watch and chain will be presented to 209 employees; for 35 years' service 81 employees will receive gold watches; while 122 employees will receive gold medals for 40 or more years' service. The awards will be made on July 18.

A PARTY OF VISITORS was recently shown over the Astmoor Works of the Chemical and Metallurgical Corporation at Runcorn. The production of sulphuric and hydrochloric acid is taking place on a commercial scale, but the plant for the lead and platinum processes is not yet complete. In the new platinum process it is hoped to overcome difficulties experienced by South African producers, and a continuous process is to be put into operation for the production of red lead and litharge.

THE BIRMINGHAM CORPORATION Salvage Committee publish this week a progress report regarding the fertiliser and feeding stuffs plant. The amount of raw material received last year was 4,287 tons, a record, and the manures and meals made amounted to 1,057 tons, compared with 947 in 1927. The bulk of the material for the fertiliser plant was obtained from the City slaughter houses. The total amount of vegetable refuse was 4,000 tons. The salvage department has evolved a new process for economically converting this into a concentrated manure.

UNIVERSITY NEWS.—Glasgow: The degree of Ph.D. has been conferred upon Mr. Herbert Williams Stephen, for a thesis on "Derivatives of Thiazole."—Birmingham: Mr. A. N. H. Slade has been appointed Assistant Lecturer in Coal Treatment. The gift of two scholarships of £60 each for three years in the Department of Oil Engineering and Refining has been made by the Phoenix Oil and Transport Co., Ltd.—London: The degree of Ph.D. has been conferred on Mr. F. W. Handley, for research work carried out during the last four years in the Colour Chemistry Department of Huddersfield Technical College.

A MEMORIAL from nineteen industrial research associations pleading for a continuance of State Aid by means of further grants from the Department of Scientific and Industrial Research was presented to Lord Balfour on Friday, June 29, by a deputation led by Sir James Hinchcliffe, until recently chairman of the Research Association for the Woollen and Worsted Industries. In expressing appreciation of the work done by the research associations, Lord Balfour said that the Government had decided to make a further offer of a grant through the Department on a pound per pound basis in respect of subscription on income in excess of certain minimum figures, to be fixed in each case by the Advisory Council. Unless this minimum income was assured, no grant would be available.

## References to Current Literature

### British

**APPARATUS.**—An apparatus for delivering gas at constant pressure. T. Gray, *J.S.C.I.*, June 29, pp. 187-188<sup>r</sup>.

**BEET SUGAR.**—The English beet-sugar industry. C. D. Adams. *J.S.C.I.*, June 29, pp. 179-185<sup>t</sup>.

**FATS.**—Tests for the incipient rancidity of fats. W. L. Davies. *J.S.C.I.*, June 29, pp. 185-187<sup>t</sup>.

**FOOD ANALYSIS.**—The determination of butter in margarine. L. V. Cocks and E. Nightingale. *Analyst*, June, pp. 322-327.

Tests for reconstituted cream. F. W. Richardson. *Analyst*, June, pp. 334-335.

Glycerin in cream. A. F. Lerrigo. *Analyst*, June, pp. 335-336.

**GENERAL.**—Seasonal variations in the composition of the latex of *Hevea brasiliensis*. N. Rae. *Analyst*, June, pp. 330-334.

**HIGH-PRESSURE SYNTHESIS.**—The rôle of catalysts in high-pressure synthesis from water-gas. P. K. Frolich. *J.S.C.I.*, June 29, pp. 173-179<sup>t</sup>.

### United States

**CELLULOSE.**—Cellulose resources. II.—Cellulose from field crops. G. M. Rommel. *Ind. Eng. Chem.*, June, pp. 587-591.

**FUEL.**—Effect of physical characteristics of coke on reactivity. J. D. Davis and D. A. Reynolds. *Ind. Eng. Chem.*, June, pp. 617-621. Results of activity tests of low and high-temperature cokes in air, steam, and carbon dioxide over temperature ranges from 800° to 1,100° C. are given. The effects on reactivity of bulk density, volatile matter, adsorptive power, size of test particles, and varying reactivity of particles of the same sample have been estimated.

Fusion of coal, coke and motor fuel by sodium peroxide. G. E. Mabee. *Ind. Eng. Chem.*, June, pp. 644-645.

**GENERAL.**—Chemical engineering may revive sublimation of sulphur. E. F. White. *Chem. Met. Eng.*, June, pp. 355-356.

Adhesion of films. Further results on the adherence of films to various surfaces. H. A. Gardner and A. W. Van Heuckeroth. *Ind. Eng. Chem.*, June, pp. 600-601.

Liquid ammonia as a solvent and the ammonia series of compounds. I.—Liquid ammonia as a solvent. W. C. Fernalius and W. C. Johnson. *J. Chemical Education*, June, pp. 664-670.

**OILS.**—Composition of petroleum and its products. G. A. Burrell. *Ind. Eng. Chem.*, June, pp. 602-606.

The viscosity-gravity constant of petroleum lubricating oils. J. B. Hill and H. B. Coats. *Ind. Eng. Chem.*, June, pp. 641-644. From data previously published on the physical properties of the viscous fractions from various types of crude petroleum, a mathematical relation has been worked out between Saybolt viscosity and specific gravity. The relation is a logarithmic one and expresses the specific gravity in terms of the viscosity and a constant which is different for each crude and is characteristic of it. This "viscosity-gravity constant" is low for the paraffinic crudes and high for the naphthenic crudes. Its value for any oil is a direct index of the degree of the paraffinic or naphthenic character which it possesses.

**PLANT.**—Operating a continuous plant for refining distillates. J. C. Morrell and D. J. Bergman. *Chem. Met. Eng.*, June, pp. 350-354.

Overhead process piping in chemical laboratories. F. C. Vilbrandt. *J. Chemical Education*, June, pp. 738-740.

**SULPHURIC ACID.**—Ammonia oxidation replaces nitre for chamber acid plants. S. F. Spangler. *Chem. Met. Eng.*, June, pp. 342-344.

### German

**ANALYSIS.**—Quantitative separations and determinations by volatilisation by means of hydrogen chloride. VI.—The quantitative determination of the oxide content of aluminium alloys. G. Jander and W. Brösse. *Zeitschrift angewandte Chem.*, June 23, pp. 702-704.

The analytical valuation of technical caseins. F. Baum. *Chemiker-Zeitung*, June 30, pp. 517-518.

Determinations of barium hydroxide, Ba(OH)<sub>2</sub> + 8H<sub>2</sub>O. *Chemiker-Zeitung*, June 30, p. 518.

**COLLOIDS.**—Dialysis. III.—The temperature coefficient of dialysis. H. Brintzinger and B. Tremer. *Zeitschrift anorganische Chem.*, Vol. 172, Part 4, pp. 426-428.

**DYESTUFFS.**—Chemiluminescence in the oxidation of dyestuffs by ozone. N. N. Biswas and N. R. Dhar. *Zeitschrift anorganische Chem.*, Vol. 173, Part 1, pp. 124-136. When ozonised oxygen is led through solutions of Eosin, Uranine, Safranine, Neutral Red, Rhodamine B, Theoflavine, Erythrosin, etc., a luminescence is observed. The wavelength of the luminescent light has been measured.

**GENERAL.**—The freezing points of ethyl alcohol-water mixtures. D. N. Tarassenkow. *Zeitschrift angewandte Chem.*, June 23, p. 704.

The occurrence of poisonous gases in a viscose artificial silk factory and its obviation. J. Eggert. *Chemiker-Zeitung*, June 27, pp. 505-506.

Snow-white and brightly coloured, non-poisonous, highly elastic rubber enamels with titanium dioxide. R. Ditmar. *Chemiker-Zeitung*, June 27, pp. 506-507.

Rapid evaporation at room temperature. E. Jantzen and H. Schmalfuss. *Chemische Fabrik*, June 20, pp. 373-375; June 27, pp. 390-392.

The occurrence of iodine in phosphate beds. E. Wilke-Dörfert, J. Beck, and G. Plepp. *Zeitschrift anorganische Chem.*, Vol. 172, Part 4, pp. 344-352.

The manufacture of maize starch and the recovery of the residues of maize oil. O. K. Krizkovsky. *Chemiker-Zeitung*, June 20, pp. 486-487.

Plasticity. IV.—Plastic masses with silicon dioxide. O. Ruff and B. Hirsch. *Zeitschrift anorganische Chem.*, Vol. 173, Part 1, pp. 14-26. Quartz powder, on grinding with pure water, and more easily in the presence of acid may be worked into plastic masses, which may be moulded and burned to 1,500° C.

The preparation of pure platinum. E. H. Reerink. *Zeitschrift anorganische Chem.*, Vol. 173, Part 1, pp. 45-48.

**INORGANIC.**—Nitrogen trifluoride. O. Ruff, J. Fischer, and F. Luft. *Zeitschrift anorganische Chem.*, Vol. 172, Part 4, pp. 417-425. Nitrogen trifluoride, NF<sub>3</sub>, is obtained as a colourless, insoluble gas by the electrolysis of a melt of NH<sub>4</sub>F.HF. It is stable.

The composition of the precipitate obtained by the action of potassium ferrocyanide on calcium chloride in the presence of acetic acid. I. Tananaeff. *Zeitschrift anorganische Chem.*, Vol. 172, Part 4, pp. 403-406.

**ORGANIC.**—A new isocellotriose. H. Ost. *Zeitschrift angewandte Chem.*, June 23, pp. 696-698.

**PLANT.**—Special castings for the chemical industry. R. W. Müller. *Chemische Fabrik*, June 27, pp. 389-390.

**TECHNIQUE.**—The determination of the vapor pressures of perfumes. G. Tammann and W. Oelsen. *Zeitschrift anorganische Chem.*, Vol. 172, Part 4, pp. 407-413.

### Miscellaneous

**APPARATUS.**—Application of an electromagnetic force to the "Thermobalance." Z. Shibata and M. Fukushima. *Bulletin Chem. Soc. Japan*, May, pp. 118-123 (in English). By the application of an electromagnet to Honda's thermobalance, the writers have removed the previous defects and have raised its accuracy to that of the chemical balance.

**CELLULOSE.**—The action of ultra-violet rays in the bleaching of celluloses. R. Escourrou. *Chimie et Industrie*, June, pp. 989-997 (in French).

The state of our knowledge of the intimate structure of cellulosic fibres. R. Michel-Jaffard. *Chimie et Industrie*, May, pp. 801-808; June, pp. 1003-1012 (in French).

**DYESTUFFS.**—The French dyestuff industry. J. H. Lucas. *Chimie et Industrie*, June, pp. 1151-1154 (in French).

**LOW-TEMPERATURE TAR.**—The chemical study of low-temperature tar. G. T. Morgan. *Chimie et Industrie*, June, pp. 998-1002 (in French).

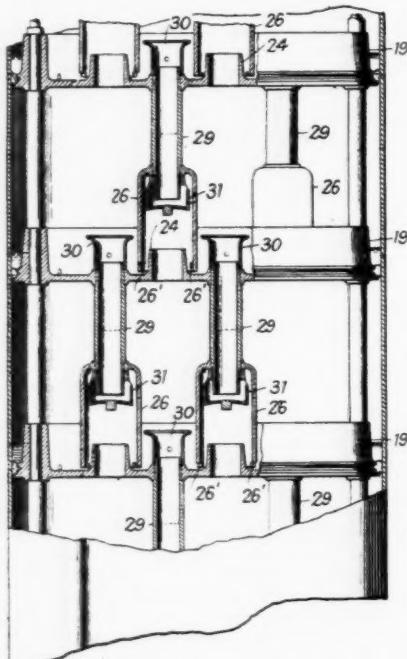
## Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

### Abstracts of Complete Specifications

**291,527. TREATING GASES AND VAPOURS WITH LIQUIDS, METHOD OF AND APPARATUS FOR.** F. B. Dehn, Kingsway House, 103, Kingsway, London, W.C.2. From C. F. Braun, Alhambra, Cal., U.S.A. Application date, March 3, 1927.

This apparatus is an improved form of the bubble type. A vertical cylindrical casing is provided with horizontal partitions dividing it into superposed chambers, each partition having



291,527

upwardly-projecting nipples 24 arranged out of line with those in the plate above. Each nipple is surrounded by a cap 26 having a serrated lower edge 26', the caps being suspended from drain tubes 29 supported on the plate above. The pipes 29 extend upwards to a liquid inflow nozzle 30, and at the lower ends they discharge into weir cups 31, from which the liquid overflows on to the plate below. The upwardly-flowing gas is deflected by the bottom of the cups 31 against the downwardly flowing liquid. The uppermost plate 19 of the series is not provided with the bubble devices, but carries deflector caps which project the upwardly-flowing gas downwards upon the partition plate to extract any suspended liquid. This apparatus will operate at a relatively low pressure, and with a small energy loss in the vapour or gas.

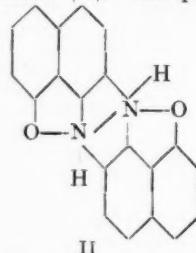
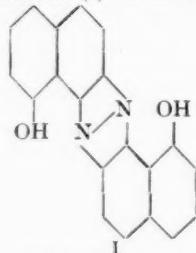
**291,552. DERIVATIVES OF N-DIHYDRO 1 : 2 : 1<sup>1</sup> : 2<sup>1</sup>—ANTHRAQUINONE AZINE FAST TO CHLORINE, MANUFACTURE OF.** J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 18, 1927.

It is known that N-dihydro-1 : 2 : 1<sup>1</sup> : 2<sup>1</sup>—anthraquinone-azine dissolved in 96 per cent. sulphuric acid can be treated with chlorine to obtain a derivative which is not fast to chlorine, and it is now found that derivatives which are fast to chlorine can be obtained by chlorination in weaker sulphuric acid of 85-95 per cent. strength. The chlorination is effected at 40°-70° C. with addition of a catalyst. The chlorine derivatives can be obtained pure by fractional separation from the sulphuric acid solution by adding dilute sulphuric acid or water. The chlorination products can be converted into

the hydroazines by treating with reducing agents. An example is given.

**291,546. DYESTUFFS, MANUFACTURE OF.** J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application dates, March 14, September 5, and October 11, 1927.

1 : 2 : 1<sup>1</sup> : 2<sup>1</sup>-dinaphthazine-8 : 8<sup>1</sup>-disulphonic acid when fused with caustic potash yields a substance which is insoluble in dilute alkalies but was previously not regarded as a dihydroxydinaphthazine but as a condensation product. This substance can be converted by treating with alkylating agents into compounds which are dialkoxy-dinaphthazines. The product obtained by treating 1 : 2 : 1<sup>1</sup> : 2<sup>1</sup>-dinaphthazine-8 : 8<sup>1</sup>-disulphonic acid in the alkaline melt is therefore considered to have the formula (I) or that of an isomer (II). This product

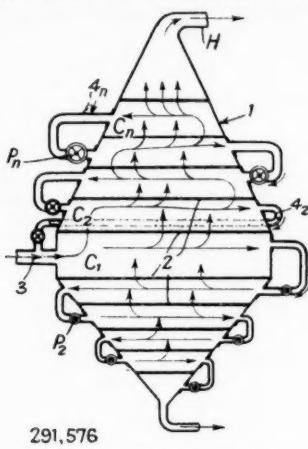


when slightly halogenated as described in Specification No. 241,270 (see THE CHEMICAL AGE, Vol. XIII, p. 527) yields substitution products containing 3-4 atoms of halogen. It is now found that a further halogenation can be effected to obtain products containing 6-10 halogen atoms which differ considerably from compounds having fewer halogen atoms. The halogenation is effected in acetic anhydride, a halogenated fatty acid, nitrobenzene, halogenated hydrocarbons, or in a halogenating agent alone, e.g., in sulphuryl chloride. The products are soluble in glacial acetic acid, benzene, pyridine, or nitrobenzene, and in concentrated sulphuric acid. They are probably addition products and not substitution products. The halogen can be partly removed as such and partly as halogenhydride by means of concentrated sulphuric acid, inorganic or organic bases, sodium acetate, etc., or reducing agents such as metals, sulphurous acid, hydrosulphite, alcohols, phenols, hydrazine, and hydroxylamine. The products are vat dyestuffs giving fast red or bluish-red shades. A number of examples are given.

**291,576. SEPARATION OF HYDROGEN FROM MIXTURES, APPARATUS FOR.** H. M. R. Barjot, Elizabeth-Katanga, Belgian Congo. Application date, April 14, 1927.

The apparatus employs the principle of osmotic diffusion for separating hydrogen from mixtures such as water-gas, coke-oven gas, etc. The gas mixture is caused to flow along a porous wall, the other side of which is maintained at a lower pressure, and the higher speed of diffusion of hydrogen causes the gas which diffuses through to be richer in hydrogen. Several series of such separating units may be employed, arranged in such a manner that the partly dehydrogenated mixture leaving the first apparatus of each series passes successively into the other apparatus of each series, while the enriched gas collected from the first apparatus is passed into the supply compartment of the first apparatus of the following series. The partly dehydrogenated mixture leaving the last apparatus of the last series is returned to the supply compartment of the preceding series. The whole apparatus may be combined within a common casing. The cone-shaped casing 1 is divided by porous walls 2 into a number of superposed compartments. The gas mixture enters by pipe 3 into the central compartment C<sub>1</sub> and passes upwards through the compartments C<sub>2</sub>-C<sub>n</sub>. Purified hydrogen is drawn off through the outlet H. The compartments are connected by pipes 4<sub>1</sub>-4<sub>n</sub> having centrifugal pumps P<sub>1</sub>-P<sub>n</sub>, while a similar arrangement applies to the compartments below C<sub>1</sub>. The connecting pipes are such that the gas remaining in any compartment is passed

into the compartment next below, while the pressure decreases by about one atmosphere per compartment from the lowest compartment and outlet I where residual gas is drawn off, to the highest compartment and outlet H where hydrogen is drawn



291,576

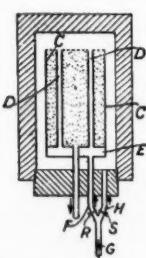
off. The apparatus is particularly suitable for freeing hydrogen from carbon monoxide for the synthesis of ammonia. The porous walls may be of vegetable or mineral substances, or metal plates with very fine holes.

**NOTE.**—Abstracts of the following specifications, which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention:—283,868 (H. O. Traun) relating to containers for hydrofluoric acid and other highly corrosive chemicals, see Vol. XVIII, p. 271; 283,898 (Consortium Electro-Chimique de France) relating to production of lead minium having a high peroxide content, see Vol. XVIII, p. 271.

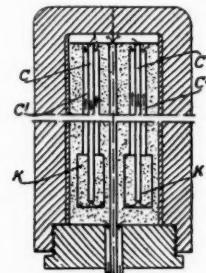
#### International Specifications not yet Accepted

289,759 and 289,823. CATALYTIC APPARATUS. Soc. l'Air Liquide, Soc. Anon. pour l'Etude et l'Exploitation des Procédés G. Claude, 48, Rue St. Lazare, Paris. (Assignees of Soc. Chimique de la Grande Paroisse Azote et Produits Chimiques, 13, Rue des Saussaies, Paris.) International Convention dates, April 30, 1927 and August 9, 1926.

289,759. The catalyst chamber C contains heat exchanging tubes D communicating with a chamber E. Gas is supplied in regulated proportions from the pipe G to the chamber E and to the space surrounding the chamber C, so that the



289,759



289,823

heat exchanging effect can be varied. The apparatus can be used with a nitrogen-hydrogen mixture containing a variable proportion of carbon monoxide. The valves are regulated to effect correctly the conversion into methane.

289,823. In the synthesis of ammonia, the gases are circulated through concentric tubes C, C', and through spaces K which contain some of the catalyst, and then through the main body of the catalyst.

289,777. CROTONYL BROMIDE. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, April 30, 1927.

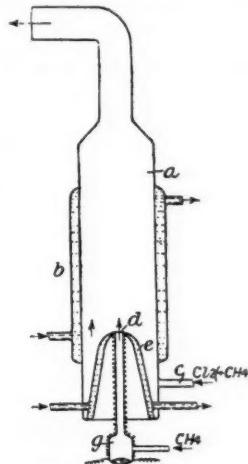
Butadiene is added to a solution of hydrobromic acid in glacial acetic acid, to obtain crotonyl bromide.

289,794. SYNTHETIC RESINS. Nobel Industries, Ltd., Nobel House, Buckingham Gate, London. (Assignees of C. E. Burke, 409, McCable Avenue, Wilmington, and H. H. Hopkins, 408, West 25th Street, Wilmington, Del., U.S.A.) International Convention date April 28, 1927.

A mixture of penta-erythritol, a polybasic acid such as succinic, malic, fumaric, tartaric, citric, or phthalic acid, or phthalic anhydride, and a drying oil such as linseed, perilla, soya bean, chinawood, or fish oil acids, with or without natural resins, is heated to 180°-265° C. in the absence of air to obtain a synthetic resin.

289,795. HYDROCARBON HALOGEN DERIVATIVES. M. Polanyi, 15, Waltraudstrasse, Zehlendorf Mitte, Berlin, and S. von Bogdandy, 14, Königin-Luisenstrasse, Dahlem, Berlin. International Convention date, April 29, 1927.

The reaction between a halogen and hydrocarbon is initiated by the presence of a body capable of combining more rapidly



289,795

than the hydrocarbon with the halogen, e.g., an alkali metal, arsenic, or phosphorus. To produce methyl chloride, a mixture of chlorine and methane is admitted at *c*, and sodium vapour at *d* to a jacketed chamber *a*. Sodium is contained in a heated vessel *g*, and is vaporised by the passage of the methane over it. The temperature is kept below 300° C. by the cooling jackets. The hydrocarbon  $C_{18}H_{38}$  gives chlorination products which, after splitting off chlorine and oxidation, yield acids suitable for soap manufacture.

289,807. DYES. I.G. Farbenindustrie Akt.-Ges, Frankfort-on-Main, Germany. International Convention date, May 2, 1927.

Quinizarin or leuco-quinizarin is treated with hydroxy-alkylamines to obtain hydroxy-alkylamino-anthraquinones. The products can be sulphonated or esterified with sulphuric acid. The bases are cellulose acetate dyes and the sulphonated acids are acid wool dyes. Examples are given.

289,841. SULPHOACIDS. Oranienburger Chemische Fabrik Akt.-Ges., 1a, Hardenbergstrasse, Charlottenburg, Berlin. (Assignees of Chemische Fabrik Milch Akt.-Ges., 67, Oranienburgerstrasse, Berlin.) International Convention date, May 3, 1927.

Halogen-substituted sulphoacids are obtained by treating aliphatic, aromatic, or hydroaromatic compounds with sulphuric acid halohydrins. Thus, castor oil and a mixture of ground nut fatty acid, wool fat and benzene may be treated with chlorsulphonic acid with the addition of powdered pyrolusite, and the products neutralised.

289,879. SULPHURIC ACID. Verein für Chemische und Metallurgische Produktion, Aussig-on-Elbe, Czechoslovakia. International Convention date, May 5, 1927.

Sulphur dioxide is oxidised in stages by a contact process, with separation of the trioxide at each stage, and the heat of reaction of each stage is used for heating the chamber of the next stage. The conversion in each stage is so regulated that the heat is sufficient for the conversion in the next stage.

## LATEST NOTIFICATIONS.

- 292,904. Bromination products of 4, 4'-dimethyl-6, 6'-dichlorothio-indigo, and a process of making the same. Newport Co. June 25, 1927.
- 292,595. Manufacture of condensation products from urea and an alcohol or a ketone. I. G. Farbenindustrie Akt.-Ges. June 24, 1927.
- 292,912. Manufacture of aldehyde-amino-resinous compounds. Scovill Manufacturing Co. June 25, 1927.
- 292,564. Apparatus for recovering volatile solvents in the drying of goods. I. G. Farbenindustrie Akt.-Ges. June 22, 1927.
- 292,615. Process for the manufacture of alkylene-diamines. I. G. Farbenindustrie Akt.-Ges. June 23, 1927.
- 292,622. Manufacture of new dyestuff preparations. Soc. of Chemical Industry in Basle. June 24, 1927.
- 292,929. Manufacture of cellulose esters. I. G. Farbenindustrie Akt.-Ges. June 25, 1927.
- 292,932. Refining of petroleum. Hofmann, F., and Stegemann, W. June 25, 1927.
- 292,933. Refining of oils derived from coal. Hofmann, F., and Stegemann, W. June 25, 1927.

## Specifications Accepted with Date of Application

- 264,530. Carbazole quinones. Manufacture of. I.G. Farbenindustrie Akt.-Ges. January 15, 1926.
- 264,535. Hydrogen peroxide. Concentration and distillation of solutions of. I.G. Farbenindustrie Akt.-Ges. January 18, 1926.
- 267,959. Refining low boiling distillates of earth and mineral oils. S. Stransky and F. Hansgirg. March 18, 1926.
- 268,775. Hydrocarbons or oxygen derivatives thereof. Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. April 3, 1926.
- 275,590. Nitropyridine arsenic acids. Production of. A. Binz and C. Rath. August 5, 1926.
- 282,015. Steel alloys. Method of raising the yield point of. F. Krupp Akt.-Ges. December 7, 1926.
- 283,509. Alumina. Preparation of. J. C. Seailles. January 11, 1927. Addition to 277,697.
- 286,602. Vat dyestuffs of the dibenzanthrone series. Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. December 14, 1925.
- 286,285. De-arsenifying ores and metallurgical products. Nord-deutsche Affinerie. March 3, 1927.
- 292,186. Sulphuretted hydrogen or sulphides from sulphur. Manufacture of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.) January 10, 1927.
- 292,231. Refining of liquid hydrocarbons. H. Wade. (Silica Gel Corporation.) March 14, 1927.
- 292,245. Complex bodies containing mercury. Manufacture of. K. Carpmael and K. S. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) March 16, 1927.
- 292,253. Phospho-tungsto-molybdenum compounds. Manufacture of—and of lakes therefrom. K. Carpmael and K. S. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) March 17, 1927.
- 292,208. Purification of montan wax. J. Y. Joynson. (I.G. Farbenindustrie Akt.-Ges.) April 8, 1927.
- 292,307. Free chlorine and bromine from fluid mixtures. Removal of. British Dyestuffs Corporation, Ltd., J. B. Payman, and H. A. Piggott. April 27, 1927.
- 292,334. Acidproof structures. Production of. J. K. Wirth. May 26, 1927.
- 292,342. Hydrogen-nitrogen mixtures. Production of. M. Casale-Sacchi. June 7, 1927.
- 292,344. Dyestuffs containing chromium. Manufacture and production of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.) June 9, 1927.
- 292,404. Heat exchangers for use in catalytic apparatus. Synthetic Ammonia and Nitrates, Ltd., and F. H. Bramwell. October 27, 1927. Addition to 241,817.
- 292,407. Aluminium alloys. Treatment of. H. C. Hall and T. F. Bradbury. November 5, 1927. Addition to 281,912.
- 292,433. Benzine. Process and apparatus for the clarification of. J. J. Wack. January 13, 1928.

## Applications for Patents

- Atkinson, G. S., and McDermott, P. J. Purification of benzol, etc. 18,664. June 27.
- Bedford, C. S. Dyeing, etc., machines. 18,602. June 27.
- British Celanese, Ltd., and Ellis, G. H. Treatment of cellulosic materials. 18,572, 18,573. June 26.
- Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of carbon monoxide. 18,745. June 28.
- Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of water soluble condensation products, etc. 18,810. June 28.
- Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of new compounds of cyanamide. 18,811. June 28.

- Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of copper oxide ammonia cellulose solutions. 18,812. June 28.
- Courtaulds, Ltd. Dyeing artificial silk, etc. 18,519. June 26.
- Davidson, A., Shepherdson, A., and Thomas, J. Recovery and purification of anthraquinone. 18,823. June 28.
- Deutsche Gold-und Silber-Scheideanstalt vorm. Roessler. Preparing sodium nitrogen compounds. 18,571. June 26. (Germany, July 1, 1927.)
- Distillers Co., Ltd., and Gilmour, R. Purification, etc., of lactic acid. 18,383. June 25.
- Distillers Co., Ltd. Treatment of molasses for yeast growth. 18,384. June 25.
- Distillers Co., Ltd., and Hutchinson, H. B. Production of butyl alcohol and acetone by fermentation. 18,385. June 25.
- Du Pont de Nemours and Co., E. I., and Marks, E. C. R. Catalytic processes of dehydrogenation, etc., of organic compounds. 19,048. June 30.
- Du Pont de Nemours and Co., E. I. Ammonia oxidation catalyst. 18,409. June 25. (United States, February 18.)
- Higgins, E. B., and United Water Softeners, Ltd. Manufacture of base exchange materials. 18,837. June 28.
- Higgins, E. B., and United Water Softeners, Ltd. Treatment of water by precipitation process. 18,838. June 28.
- Higgins, E. B., and United Water Softeners, Ltd. Treatment of water containing active chlorine. 19,031. June 30.
- Hofmann, F., and Stegemann, W. Refining petroleum. 18,414. June 25. (Germany, June 25, 1927.)
- Hofmann, F. Refining oils from coal. 18,415. June 25. (Germany, June 25, 1927.)
- Horsley, G. F. Hydrogenation of aldehydes. 18,865. June 20.
- I.G. Farbenindustrie Akt.-Ges and Johnson, Jy. Production of alkali nitrates from alkali chlorides. 18,348. June 25.
- I.G. Farbenindustrie Akt.-Ges and Johnson, Jy. Method of working with hydrocarbons at high temperatures. 18,521, 18,522, 18,523, 18,524. June 26. (March 3, 1927.)
- I.G. Farbenindustrie Akt.-Ges and Johnson, Jy. Extinguishing fire. 18,635. June 27.
- I.G. Farbenindustrie Akt.-Ges and Imray, O. Y. Ascertaining distance between perforations in kinematograph film, etc. 18,817. June 28.
- I.G. Farbenindustrie Akt.-Ges and Johnson, J. Y. Production of artificial compositions. 19,044. June 30.
- I.G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs in powder form. 18,347. June 25. (Germany, August 22, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Manufacture of cellulose esters. 18,381. June 25. (Germany, June 25, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Process for washing gases, etc. 18,528. June 26. (Germany, June 29, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Manufacture of hormones. 18,698. June 27. (Germany, August 17, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Manufacture of finely-subdivided metals. 18,818. June 28. (Germany, July 11, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Manufacture of antihalation coatings. 18,940. June 29. (Germany, July 16, 1927.)
- Imperial Chemical Industries, Ltd. Prevention of knocking in internal-combustion engines. 18,531. June 26.
- Imperial Chemical Industries, Ltd. Solvents for nitrocellulose. 18,580. June 26.
- Imperial Chemical Industries, Ltd., and Jenkins, W.J. Manufacture of azo dyes. 18,687. June 27.
- Imperial Chemical Industries, Ltd. Hydrogenation of aldehydes. 18,865. June 29.
- Imperial Chemical Industries, Ltd. Production of carbon black from natural gas. 18,866. June 29.
- Imperial Chemical Industries, Ltd. Automatic control of turbo-alternators. 18,893. June 29.
- Imperial Chemical Industries, Ltd., and Rodd, E. H. Dyes. 19,054. June 30.
- Imray, O. Y., and Soc. of Chemical Industry in Basle. Manufacture of dyestuffs of the polymethine series. 18,670. June 27.
- Oel-und Fett-Chemie Ges. Obtaining fatty acids from unsaponifiable matter. 18,960. June 29. (Germany, August 26, 1927.)
- Soc. Anon. M. Naef et Cie. Preparation of lactone of 14-oxytetradecane-1-carboxyl acid. 18,550. June 26. (Switzerland, July 27, 1927.)
- Soc. Anon. M. Naef et Cie. Preparation of monocyclic lactones. 18,551. June 26.
- Soc. Générale Métallurgique de Hoboken. Manufacture of sulphuric acid. 18,806. June 28. (Germany, September 3, 1927.)
- Soc. of Chemical Industry in Basle. Obtaining hormones. 18,674. June 27. (Germany, June 27, 1927.)
- Soc. of Chemical Industry in Basle. Producing fast tints on ethers, etc. 18,941. June 29. (Switzerland, June 29, 1927.)
- Vianova Ges. für Chemische Industrie. Extraction of essential oils, etc. 18,549. June 26. (Germany, June 28, 1927.)
- Winter, R. M. Production of carbon black from natural gas. 18,866. June 29.

## Weekly Prices of British Chemical Products

*The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.*

### General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.  
 ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.  
 ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.  
 ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.  
 ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.  
 AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.  
 BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.  
 BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.  
 BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags carriage paid any station in Great Britain.)  
 CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.  
 COPPER SULPHATE.—£25 to £25 10s. per ton.  
 METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall.; pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised, 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.  
 NICKEL SULPHATE.—£38 per ton d/d.  
 NICKEL AMMONIA SULPHATE.—£38 per ton d/d.  
 POTASH CAUSTIC.—£30 to £33 per ton.  
 POTASSIUM BICHROMATE.—4½d. per lb.  
 POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.  
 SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.  
 SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.  
 SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.  
 SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.  
 SODIUM ACETATE 97/98%.—£21 per ton.  
 SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.  
 SODIUM BICHROMATE.—3½d. per lb.  
 SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.  
 SODIUM CHLORATE.—2½d. per lb.  
 SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.  
 SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.  
 SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.  
 SODIUM SULPHIDE CONC. SOLID, 60/65%.—£13 5s. per ton d/d. Contract, £13. Carr. paid.  
 SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.  
 SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

### Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 6¾d. per lb. Crude 60's, 2s. 3d. to 2s. 4d. per gall. prompt.  
 ACID CRESYLIC 99/100.—2s. 7d. to 3s. per gall. 97/99.—2s. 6d. to 2s. 8d. per gall. Pale, 95%, 2s. 4d. to 2s. 5d. per gall. Dark, 2s. 1d. to 2s. 4d.  
 ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.  
 ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.  
 BENZOLE.—Prices at works: Crude, 10½d. to 11d. per gall.; Standard Motor, 1s. 4½d. to 1s. 5d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall.; Pure, 1s. 10d. to 1s. 11d. per gall.  
 TOLUOLE.—90%, 1s. 6d. to 2s. per gall. Firm. Pure, 1s. 10d. to 2s. 2d. per gall.  
 XYLOL.—1s. 3d. to 1s. 11d. per gall. Pure, 2s. 3d. per gall.  
 CREOSOTE.—Cresylic, 20/24%, 9d. per gall.; middle oil, 7d. to 8d. per gall. Heavy, 8d. to 8½d. per gall. Standard specification, 6½d. to 6¾d. ex works. Salty, 7½d. per gall.  
 NAPHTHA.—Crude, 8½d. to 9d. per gall. Solvent 90/160, 1s. 1½d. 1s. 2½d. per gall. Solvent 95/160, 1s. 2d. to 1s. 7d. per gall. Solvent 90/190, 11d. to 1s. 4d. per gall.  
 NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed, £8 per ton. Hot pressed, £8 10s. to £9 per ton.  
 NAPHTHALENE.—Crystals, £13 to £14 10s. per ton. Quiet. Flaked, £13 to £15 per ton, according to districts.  
 PITCH.—Medium soft, 57s. 6d. to 65s. per ton, f.o.b., according to district. Nominal.  
 PYRIDINE.—90/140, 5s. to 6s. per gall. 90/180, 3s. to 4s. 6d. per gall. Heavy, 2s. 6d. to 3s. per gall.

### Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:  
 ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.  
 ACID ANTHRANILIC.—6s. per lb. 100%.  
 ACID BENZOIC.—1s. 8½d. per lb.  
 ACID GAMMA.—4s. 6d. per lb.  
 ACID H.—3s. per lb.  
 ACID NAPHTHIONIC.—1s. 6d. per lb.  
 ACID NEVILLE AND WINTHROP.—4s. 9d. per lb.  
 ACID SULPHANILIC.—8½d. per lb.  
 ANILINE OIL.—8d. per lb. naked at works.  
 ANILINE SALTS.—8d. per lb. naked at works.  
 BENZALDEHYDE.—2s. 3d. per lb.  
 BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.  
 BENZOIC ACID.—1s. 8½d. per lb.  
 o-CRESOL 29/31° C.—5½d. per lb.  
 m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.  
 p-CRESOL 32/34° C.—2s. 3d. to 2s. 6d. per lb.  
 DICHLORANILINE.—2s. per lb.  
 DIMETHYLANILINE.—1s. 11d. per lb.  
 DINITHROBENZENE.—8½d. per lb. naked at works. £75 per ton.  
 DINITROCHLORBENZENE.—£84 per ton d/d.  
 DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.  
 DIPHENYLAMINE.—2s. 10d. per lb. d/d.  
 o-NAPHTHOL.—2s. per lb. d/d.  
 B-NAPHTHOL.—10d. per lb. d/d.  
 o-NAPHTHYLAMINE.—1s. 3d. per lb.  
 B-NAPHTHYLAMINE.—3s. per lb.  
 o-NITRANILINE.—5s. 9d. per lb.  
 m-NITRANILINE.—3s. per lb. d/d.  
 p-NITRANILINE.—1s. 8d. per lb.  
 NITROBENZENE.—6d. per lb. naked at works.  
 NITRONAPHTHALENE.—1s. 3d. per lb.  
 R. SALT.—2s. 2d. per lb.  
 SODIUM NAPHTHONATE.—1s. 8½d. per lb. 100% basis d/d.  
 o-TOLUIDINE.—8d. per lb.  
 p-TOLUIDINE.—1s. 10d. per lb. naked at works.  
 m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.  
 N. W. ACID.—4s. 9d. per lb. 100%.

### Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.  
 CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCELL.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

### Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.  
 ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.  
 BARYTES.—£3 10s. to £6 15s. per ton, according to quality.  
 CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.  
 CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.  
 CARBON BLACK.—5½d. per lb., ex wharf.  
 CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity. drums extra.  
 CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.  
 DIPHENYLGUANIDINE.—3s. 9d. per lb.  
 INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.  
 LAMP BLACK.—£35 per ton, barrels free.  
 LEAD HYPOSULPHITE.—9d. per lb.  
 LITHOPHONE, 30%.—£22 10s. per ton.  
 MINERAL RUBBER "RUBRON."—£13 12s. 6d. per ton, f.o.r. London.  
 SULPHUR.—£9 to £11 per ton, according to quality.  
 SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.  
 SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.  
 THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.  
 VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.  
 ZINC SULPHUR.—1s. per lb.

### Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.  
 ACID, ACETYL SALICYLIC.—2s. 7d. to 2s. 8d. per lb.  
 ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 4d. per oz., according to quantity.

**ACID, BORIC B.P.**—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.  
**ACID, CAMPHORIC.**—19s. to 21s. per lb.  
**ACID, CITRIC.**—1s. 10½d. to 1s. 11d. per lb. Less 5%.  
**ACID, GALLIC.**—2s. 8d. per lb. for pure crystal, in cwt. lots.  
**ACID, PYROGALLIC, CRYSTALS.**—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.  
**ACID, SALICYLIC, B.P. PULV.**—1s. 6d. to 1s. 9d. per lb. Technical.—10½d. to 11½d. per lb.  
**ACID, TANNIC B.P.**—2s. 8d. to 2s. 10d. per lb.  
**ACID, TARTARIC.**—1s. 4½d. per lb., less 5%.  
**ACETANILIDE.**—1s. 5d. to 1s. 8d. per lb. for quantities.  
**AMIDOL.**—7s. 6d. to 9s. per lb., d/d.  
**AMIDOFYRIN.**—8s. to 8s. 3d. per lb.  
**AMMONIUM BENZOATE.**—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.  
**AMMONIUM CARBONATE B.P.**—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.  
**ATROPINE SULPHATE.**—9s. per oz.  
**BARBITONE.**—5s. 9d. to 6s. per lb.  
**BENZONAPHTHOL.**—3s. 3d. per lb. spot.  
**BISMUTH CARBONATE.**—11s. 4d. to 11s. 7d. per lb.  
**BISMUTH CITRATE.**—10s. 4d. to 10s. 7d. per lb.  
**BISMUTH SALICYLATE.**—10s. 7d. to 10s. 10d. per lb.  
**BISMUTH SUBNITRATE.**—9s. 7d. to 9s. 10d. per lb.  
**BISMUTH NITRATE.**—6s. 7d. to 6s. 10d. per lb.  
**BISMUTH OXIDE.**—14s. 7d. to 14s. 10d. per lb.  
**BISMUTH SUBCHLORIDE.**—14s. 4d. to 14s. 7d. per lb.  
**BISMUTH SUBGALLATE.**—8s. 7d. to 8s. 10d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.  
**BISMUTH ET AMMON LIQUOR.**—Cit. B.P. in W. Qts. 1s. 1½d. per lb.; 12 W. Qts. 1s. 0½d. per lb.; 36 W. Qts., 1s. per lb.  
**BORAX B.P.**—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.  
**BROMIDES.**—Ammonium, 2s. 1d. to 2s. 3d. per lb.; potassium, 1s. 9½d. to 1s. 11d. per lb.; sodium, 2s. to 2s. 2d. per lb.; granulated, 4d. per lb. less; all spot. Large quantities at lower rates.  
**CALCIUM LACTATE.**—1s. 2d. to 1s. 3d. per lb.  
**CAMPHOR.**—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.  
**CHLOR HYDRATE.**—3s. 2d. to 3s. 4d. per lb.  
**CHLOROFORM.**—2s. 4½d. to 2s. 7½d. per lb., according to quantity.  
**CREOSOTE CARBONATE.**—6s. per lb.  
**ETHERS.**—S.G. 730—11d. to 1s. od. per lb., according to quantity; other gravities at proportionate prices.  
**FORMALDEHYDE.**—£39 per ton, in barrels ex wharf.  
**GUAIACOL CARBONATE.**—4s. 9d. to 5s. per lb.  
**HEXAMINE.**—2s. 3d. to 2s. 6d. per lb.  
**HOMATROPINE HYDROBROMIDE.**—30s. per oz.  
**HYDRASTINE HYDROCHLORIDE.**—English make offered at 120s. per oz.  
**HYDROGEN PEROXIDE (12 VOLs.).**—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.  
**HYDROQUINONE.**—3s. 9d. to 4s. per lb., in cwt. lots.  
**HYPOPHOSPHITES.**—Calcium, 3s. 6d. per lb., for 28 lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.  
**IRON AMMONIUM CITRATE.**—B.P., 2s. 6d. to 2s. 9d. per lb. Green, 2s. 9d. to 3s. 2d. per lb.; U.S.P., 2s. 7d. to 2s. 10d. per lb.  
**IRON PERCHLORIDE.**—18s. to 20s. per cwt., according to quantity.  
**IRON QUININE CITRATE.**—B.P., 8½d. to 9½d. per oz.  
**MAGNESIUM CARBONATE.**—Light commercial, £31 per ton net.  
**MAGNESIUM OXIDE.**—Light commercial, £6s. 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.  
**MENTHOL.**—A.B.R. recrystallised B.P., 17s. per lb. net for January delivery; Synthetic, 9s. to 10s. per lb.; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.  
**MERCURIALS B.P.**—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 9d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.  
**METHYL SALICYLATE.**—1s. 5d. to 1s. 9d. per lb.  
**METHYL SULPHONATE.**—9s. to 9s. 3d. per lb.  
**METOL.**—9s. to 11s. 6d. per lb. British make.  
**PARAFORMALDEHYDE.**—1s. 9d. per lb. for 100% powder.  
**PARALDEHYDE.**—1s. 1d. to 1s. 4d. per lb.  
**PHENACETIN.**—2s. 6d. to 2s. 9d. per lb.  
**PHENAZONE.**—4s. to 4s. 3d. per lb.  
**PHENOLPHTHALEIN.**—6s. to 6s. 3d. per lb.  
**POTASSIUM BITARTRATE 99/100% (Cream of Tartar).**—98s. per cwt., less 2½ per cent.

**POTASSIUM CITRATE.**—B.P.C., 2s. 4d. to 2s. 7d. per lb.; U.S.P., 2s. 3d. to 2s. 6d. per lb.  
**POTASSIUM FERRICYANIDE.**—1s. 9d. per lb., in cwt. lots.  
**POTASSIUM IODIDE.**—16s. 8d. to 17s. 2d. per lb., according to quantity.  
**POTASSIUM METABISULPHITE.**—6d. per lb., 1-cwt. kegs included, f.o.r. London.  
**POTASSIUM PERMANGANATE.**—B.P. crystals, 5½d. per lb., spot.  
**QUININE SULPHATE.**—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.  
**RESORCIN.**—2s. 10d. to 3s. per lb., spot.  
**SACCHARIN.**—47s. per lb.; in quantity lower.  
**SALOL.**—2s. 4d. per lb.  
**SODIUM BENZOATE, B.P.**—1s. 8d. to 1s. 11d. per lb.  
**SODIUM CITRATE, B.P.C.**—1911—2s. 1d. to 2s. 4d. per lb., B.P.C. 1923—2s. 5d. to 2s. 6d. per lb. U.S.P., 2s. 4d. to 2s. 7d. per lb., according to quantity.  
**SODIUM FERROCYANIDE.**—4d. per lb., carriage paid.  
**SODIUM HYPOSULPHITE, PHOTOGRAPHIC.**—£15 per ton, d/d consignee's station in 1-cwt. kegs.  
**SODIUM NITROPRUSSIDE.**—16s. per lb.  
**SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).**—95s. to 100s. per cwt. Crystals, 5s. per cwt. extra.  
**SODIUM SALICYLATE.**—Powder, 1s. 7d. to 1s. 9d. per lb. Crystal, 1s. 8d. to 1s. 10d. per lb.  
**SODIUM SULPHIDE, PURE RECRYSTALLISED.**—10d. to 1s. 1d. per lb.  
**SODIUM SULPHITE, ANHYDROUS.**—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.  
**SULPHONAL.**—6s. 9d. to 7s. per lb.  
**TARTAR EMETIC, B.P.**—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.  
**THYMOL.**—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 1s. 3d. per lb.

#### Perfumery Chemicals

**ACETOPHENONE.**—7s. per lb.  
**AUBEPINE (EX ANETHOL).**—10s. per lb.  
**AMYL ACETATE.**—2s. 6d. per lb.  
**AMYL BUTYRATE.**—4s. 9d. per lb.  
**AMYL SALICYLATE.**—2s. 9d. per lb.  
**ANETHOL (M.P. 21/22° C.).**—5s. 3d. per lb.  
**BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.**—2s. per lb.  
**BENZYL ALCOHOL FREE FROM CHLORINE.**—2s. per lb.  
**BENZALDEHYDE FREE FROM CHLORINE.**—2s. 6d. per lb.  
**BENZYL BENZOATE.**—2s. 6d. per lb.  
**CINNAMIC ALDEHYDE NATURAL.**—15s. 6d. per lb.  
**COUMARIN.**—9s. 9d. per lb.  
**CITRONELLOL.**—13s. 6d. per lb.  
**CITRAL.**—8s. 3d. per lb.  
**ETHYL CINNAMATE.**—6s. per lb.  
**ETHYL PHthalate.**—2s. 6d. per lb.  
**EUGENOL.**—10s. 6d. per lb.  
**GERANIOL (PALMAROSA).**—23s. per lb.  
**GERANIOL.**—6s. 6d. to 11s. per lb.  
**HELiotropine.**—4s. 9d. per lb.  
**Iso Eugenol.**—14s. 6d. per lb.  
**LINALOL.**—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.  
**LINALYL ACETATE.**—Ex Shui Oil, 14s. 6d. per lb. Ex Bois de Rose, 18s. 6d. per lb.  
**METHYL ANTHRANILATE.**—8s. 6d. per lb.  
**METHYL BENZOATE.**—4s. per lb.  
**MUSK KETONE.**—35s. per lb.  
**MUSK XYLOL.**—7s. per lb.  
**NEROLIN.**—3s. 6d. per lb.  
**PHENYL ETHYL ACETATE.**—11s. per lb.  
**PHENYL ETHYL ALCOHOL.**—10s. 6d. per lb.  
**RHODINOL.**—38s. per lb.  
**SAFROL.**—1s. 6d. per lb.  
**TERPINEOL.**—1s. 6d. per lb.  
**VANILLIN.**—16s. 6d. per lb.

#### Essential Oils

**ALMOND OIL.**—Foreign S.P.A., 10s. 6d. per lb.  
**ANISE OIL.**—2s. 9d. per lb.  
**BERGAMOT OIL.**—26s. per lb.  
**BOURBON GERANIUM OIL.**—21s. per lb.  
**CAMPBELL OIL.**—9d. per lb.  
**CANANGA OIL, JAVA.**—12s. 9d. per lb.  
**CINNAMON OIL LEAF.**—6s. 9d. per oz.  
**CASSIA OIL, 80/85%.**—8s. per lb.  
**CITREONELLA OIL.**—Java, 2s. 1d. per lb., c.i.f. U.K. port. Ceylon, pure, 2s. 2d. per lb.  
**CLOVE OIL (PURE 90/92%).**—6s. 9d. per lb.  
**EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.**—2s. 1d. per lb.  
**LAVENDER OIL.**—Mont Blanc, 4s. 50%. Esters, 15s. 9d. per lb.  
**LEMON OIL.**—12s. per lb.  
**LEMONGRASS OIL.**—4s. 3d. per lb.  
**ORANGE OIL, SWEET.**—30s. per lb.  
**OTTO OF ROSE OIL.**—Anatolian, 35s. per oz. Bulgarian, 6os. per oz.  
**PALMA ROSA OIL.**—13s. 9d. per lb.  
**PEPPERMINT OIL.**—Wayne County, 15s. per lb.; Japanese, 7s. 3d. per lb.  
**PETITGRAIN.**—7s. 3d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90/95%, 16s. 6d. per lb.

## London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, July 5, 1928.

THE uptake of chemicals during the past week has been fairly satisfactory, although it is noticeable that the demand from the textile areas is rather less than usual, undoubtedly owing to the holiday seasons setting in. Prices, however, are maintained. Export inquiry is satisfactory.

### General Chemicals

ACETONE has been in fairly satisfactory demand with price unchanged at £65 to £67 per ton, according to quantity.

ACID ACETIC continues in everyday request at unchanged prices, which now appear to be steady.

ACID FORMIC is in quiet request at £47 per ton for 85% with the forward position firm.

ACID LACTIC is in better demand with price unchanged at £43 per ton for the pale quality 50% by weight.

ACID OXALIC continues active at £31 to £33 per ton according to quantity.

ACID TARTARIC has not been quite so active and the price is a shade easier at 1s. 4½d. to 1s. 4d. per lb.

AMMONIUM CHLORIDE continues easy with demand only for small quantities price about £19 per ton for 98/100% fine quality crystals.

ALUMINA SULPHATE is in active inquiry and still in rather short supply for spot and near delivery. The present price is £6 to £6 10s. for 17 1/8% quality technically free from iron. The forward position is very firm.

ARSENIC.—Inquiry is improving, especially on export account, but no change has yet been noticed in the price.

BARIUM CHLORIDE is very much dearer and in rather short supply for near delivery, demand is improving and spot material is at a premium.

COPPER SULPHATE.—There is not so much business passing owing to the cessation of shipments for the season, but there is little change in the price.

CREAM OF TARTAR is unchanged and in fair demand at about £104 per ton, less 2½% for 99/100% B.P. quality.

FORMALDEHYDE has been fairly active and price is unchanged at £39 10s. for 40% by volume.

LEAD ACETATE.—Prices are maintained and there is a satisfactory demand for white and brown at £42 10s. and £41 10s. respectively.

LEAD NITRATE is unchanged at £37 per ton.

LIME ACETATE is unchanged.

METHYL ACETONE.—A fair trade is passing at about £56 to £58 per ton for 45% material.

POTASSIUM CARBONATE AND CAUSTIC is unchanged in price with a steady business passing.

POTASSIUM CHLORATE is in active request for export at about £28 per ton.

POTASSIUM PERMANGANATE.—A fair business is noted at 5½d. for best B.P. grades, with commercial at halfpenny per lb. less.

POTASSIUM PRUSSIATE has been in very good demand, and price is firm at £63 10s. to £65 10s., according to quantity.

SODIUM ACETATE.—Demand has been better and price keeps firm at £22 per ton.

SODIUM PHOSPHATE is in good request at about £13 per ton.

SODIUM PRUSSIATE.—Price remains firm at 5d. per lb., the product has been in good demand.

SODIUM SULPHIDE is unchanged at British makers' figures.

TARTAR EMETIC is firm at 11½d. per lb.

ZINC SULPHATE is unchanged at £12 per ton.

### Coal Tar Products

The market for benzols and solvents is slightly more active, but there is very little demand for cresylic acid, and owing to the downward trend of the market for creosote oil, suppliers are not offering very freely.

MOTOR BENZOL is quoted at about 1s. 4d. per gallon, on rails.

SOLVENT NAPHTHA shows signs of improvement, and is quoted at 1s. 1½d. to 1s. 2d. per gallon, on rails.

HEAVY NAPHTHA remains at 1s. 1d. to 1s. 2d. per gallon on rails.

CREOSOTE OIL is quoted at about 6½d. per gallon on rails in the North, for spot delivery, and at about 7d. per gallon in London.

CRESYLCIC ACID remains weak, the 98/100% quality being quoted at about 2s. 6d. per gallon, f.o.b., and the dark quality, 95/97%, is quoted at about 1s. 10d. to 1s. 11d. per gallon.

NAPHTHALENES.—The 74/76 quality can be bought at £5 per ton, and the 76/78 quality at £6 to £6 10s. per ton.

PITCH.—There are no new features. The value remains at 6os.-65s. per ton, f.o.b. U.K. pcrt.

### South Wales By-Products

THERE is very little change to report in South Wales by-product activities; values all round are practically unchanged, and buying is on a moderate scale. The expectations that pitch had reached rock-bottom appear to have materialised, for the product has strengthened and prices show an upward tendency. There has been very little buying, but what little business that has been done has been transacted round about 57s. to 62s. per ton delivered South Wales. Creosote is a trifle weaker round about 7½d. to 7¾d. per gallon delivered. Refined tars maintain their strength and steady, if moderate, business is being done. Coke oven tar is unchanged at from 7½d. to 8d. per gallon delivered in barrels, and gasworks tar at from 7½d. to 7¾d. per gallon delivered. Crude tar continues to sell round the 50s. per ton mark. Crude naphthalene has very little call round about 80s. per ton f.o.r., and the same remark applies to whizzed at about 90s. per ton f.o.r.

### Methylated Spirits and Finish Prices

THE Methylating Co., Ltd., announce that since July 2 their prices until further notice, without engagement, have been as follows:

	Industrial Methylated Spirits In One Delivery	Pyridinised Industrial Methylated Spirits	Mineralised Spirits (Coloured Violet)
	61 o.p. s. d.	64 o.p. s. d.	61 o.p. s. d.
500 gallons. and upwards . . . . .	1 3	1 4 ..	1 5 1 6 ..
100 " and under 500 . . . . .	1 4	1 5 ..	1 6 1 7 ..
30 " " " 100 . . . . .	1 6	1 7 ..	1 8 1 9 ..
10 " " " 30 . . . . .	1 8	1 9 ..	1 10 1 11 ..

Methylated resin finish 2d. per gallon extra, and methylated shellac finish 8d. per gallon extra over prices quoted for pyridinised industrial methylated spirit.

### Price of Methylated Ethers

MAY AND BAKER, LTD., inform us that, owing to a reduction in the price of methylated spirit, they have been enabled to reduce the prices of their methylated ethers by a halfpenny a pound.

### Nitrogen Products

Export.—Now that the German Nitrogen Syndicate have announced their prices for July onwards, the market is steady. Prices f.o.b. U.K. ports in single bags for July shipment is 69 1s. 6d. per ton, with advances of 2s. per ton for August and September. Despite the end of the consuming season and the normal quietness of the market in June, there is no glut of supplies on the market, and it is anticipated that producers will have no difficulty in adhering to the price scales arranged. It is reported that the demand from the Far East shows a continuous expansion.

Home.—On account of the continuation of last season's prices for July delivery there is very little interest in the home market. Small purchases are being made for prompt delivery in certain areas.

Nitrate of Soda.—The nitrate market continues firm, but quiet, at about 10s. 4d. per metric quintal, f.a.s. Chile. In view of the recent increases in production at various officinas, the forward disposals are very small. Now that there is stability in the market, it is anticipated that importers will commence to cover their requirements.

## Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinion.

Glasgow, July 4, 1928.

THE heavy chemical market remains quiet, and there has been little inquiry of any importance going around during the past week. Prices on the whole remain unchanged, a notable exception being methylated spirit, which has been reduced 3d. per gallon.

### Industrial Chemicals

ACETONE B.G.S.—£64 to £67 per ton, ex store, according to quantity.

ACID ACETIC.—98 100% glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton; powder, £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Quoted 6d. per lb., delivered, or f.o.b. U.K. ports.

ACID CITRIC, B.P.—Offered for spot delivery at 1s. 11d. per lb., less 3%, ex store. Quoted 1s. 10d. per lb., less 5%, ex wharf, to come forward.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Darsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80% quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%—On offer from the Continent at 3d. per lb., ex wharf. Spot material quoted 3d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality; £5 15s. per ton for 168° quality. Darsenicated quality 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4d. per lb., less 5%, ex wharf, but this price could probably be shaded.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Quoted £5 15s. per ton, c.i.f. U.K. ports, prompt shipment. Spot material available at about £5 15s. per ton, ex store.

ALUM LUMP POTASH.—Quoted £8 7s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the Continent. Crystal meal quoted £8 10s. per ton, ex store.

AMMONIA, ANHYDROUS.—Quoted 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered, or f.o.b. U.K. ports.

AMMONIA LIQUID, 88%—Unchanged at about 2d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATIC.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Continental on offer at £19 per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—On offer for prompt despatch from mines at £19 per ton, ex wharf. Spot material quoted £20 per ton, ex store.

BARIUM CARBONATE.—98/100% English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%—Large white crystals quoted £6 15s. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract prices to consumers £6 12s. 6d. per ton, delivered minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price £4 5s. to £4 15s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—Quoted £25 per ton, c.i.f. U.K. ports, but some spot parcels available at less.

FORMALDEHYDE, 40%—Quoted £35 10s. per ton, c.i.f. U.K. ports. Spot material now on offer at £38 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at £31 per ton, ex store.

LEAD, WHITE.—£35 15s. to £37 per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals now quoted £41 5s. per ton, ex store. Brown on offer at about £40 per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

METHYLATED SPIRIT.—Industrial quality 64 O.P. now quoted 1s. 4d. per gallon, less 2%, delivered.

POTASSIUM BICHROMATE.—4d. per lb. delivered, minimum 4-ton lots. Under 4-ton lots 3d. per lb. extra.

POTASSIUM CARBONATE, 96/98%—Quoted £25 10s. per ton, ex wharf, prompt shipment from the Continent. Spot material available at £26 10s. per ton, ex store.

POTASSIUM CHLORATE, 99 1/2/100%—Powder quoted £23 10s. per ton, c.i.f. U.K. ports; crystals 30s. per ton extra; B.P. quality, crystals or powder offered at £32 per ton, c.i.f. U.K. ports.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6d. per lb., ex store, spot delivery. Offered from the Continent at 6d. per lb.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton, and 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots carriage paid on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—Spot material on offer at about £22 per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station; M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3d. per lb. delivered buyer's works, minimum 4-ton lots. Under 4 and over 2-ton lots, 1/16d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 27s. 6d. per ton extra; light soda ash, £7 3s. 9d. per ton, ex quay, minimum 4-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRATE.—Quoted £11 per ton, ex store.

SODIUM NITRITE, 100%—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE.—In moderate demand. Spot material now quoted 4d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Prices, 50s. per ton, ex works for underground quality, 52s. 6d. per ton, delivered. Ground quality, 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption: Solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £7 2s. 6d. per ton, delivered, buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; ground American, £9 5s. per ton; ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid, on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.

ZINC SULPHATE.—Quoted £11 per ton, ex wharf, prompt shipment from the Continent.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small-parcels.

### Dyers' Strike Settled

#### Workers Adopt Agreement

A SETTLEMENT of the dyers' strike was arrived at on Monday, and arrangements were made for the workers to resume work on Wednesday. At the close of a conference in Manchester on Monday between representatives of the Employers' Allied Association and the National Union of Textile Workers it was announced that an agreement had been reached whereby the N.U.T.W. agreed to accept the terms of the memorandum of June 21 made between the Dyers' Executive Committee and the Employers' Allied Association. This provides for the establishment of collective piecework or rates to provide an increase of 25 per cent. on present base wages; increase of wages of adult workers until piecework schemes are set up; revision of juvenile wages scale. The objection taken by the N.U.T.W., apart from wages, to the agreement was that certain clauses appeared to have been drafted to deal with employees who were engaged on piece work rates, but they could be interpreted to apply to all operatives employed on time work. A statement was signed by the representatives of the employers to the effect that paragraphs one to eleven of the agreement relate only to persons employed on piece work rate.

## Manchester Chemical Market

[FROM OUR OWN CORRESPONDENT.]

Manchester, July 5, 1928.

In spite of a continued sluggish demand for most of the heavy chemical products on this market, so far as prompt and early delivery business is concerned prices are holding up pretty well all round, and only in a few instances has any reactionary tendency been noticeable during the week. With regard to the demand for chemicals for shipment merchant business has been on the slow side, but makers report a fairly satisfactory flow of orders.

### Heavy Chemicals

Offers of nitrate of soda have been maintained at round recent prices levels, up to £19 15s. per ton being quoted here during the last day or two, and a moderate inquiry has been reported. Only a comparatively quiet trade is being done in saltcake, but there has been little change in values, these still being based on makers' rates of £2 12s. 6d. per ton for contracts. Phosphate of soda is attracting little buying interest at the moment, quotations ranging from about £12 to £12 5s. per ton. Sulphide of sodium is quiet, but fairly steady, at £10 per ton or slightly below this figure, for 60 to 65 per cent. concentrated solid quality and from £7 10s. to £7 15s. per ton for the commercial grade. A fair movement of caustic soda into consumption is reported, and quotations are well held at from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality. There is still only a moderate call for chlorate of soda, but values are much the same as at last report, from 2½d. to 3d. per lb. being quoted on this market. A fair business has been reported by makers of bleaching powder, offers of which are maintained at £7 per ton. Bicarbonate of soda keeps steady, and meets with a moderate demand at £10 10s. per ton. Offers of prussiate of soda this week have not been too plentiful, and prices are firm at 4½d. to 5d. per lb. There has been some inquiry about bichromate of soda, with quotations ranging from 3d. to 3½d. per lb. Photographic hyposulphite of soda continues to be offered here at about £15 10s. per ton, and the commercial material at £9 5s. per ton. A quietly steady business is being transacted in the case of alkali on a contract basis of £6 2s. 6d. per ton.

There is still only a limited demand about for permanganate of potash, and the price tendency in this section seems to be easy, though prices are still at about 4½d. per lb. for the commercial material and 5d. for the B.P. Bichromate of potash is held at round 4d. per lb., and a moderate inquiry has been met with. Chlorate of potash is rather slow, with offers at between 2½d. and 3d. per lb. Caustic potash is firm and in fair request at from £33 5s. per ton for prompt delivery of one to five-ton lots. Carbonate of potash is obtainable here at from £24 10s. to £25 per ton. A quiet trade is passing in the case of yellow prussiate of potash at steady prices, these varying from 6½d. to 7d. per lb., according to quantity.

Among the miscellaneous chemical products, only a comparatively slow trade is being put through in arsenic, offers of which are at £16 15s. to £17 per ton. Sulphate of copper is in fair request, with export quotations for this material at up to £26 5s. per ton, f.o.b. The lead compounds show little or no change in prices on the week, although inquiry is not very active; nitrate is quoted at about £37 per ton, with white and brown acetate at £40 and £39 5s. respectively. Acetate of lime is steady, and in moderate request at £16 5s. to £16 10s. per ton for grey and £9 10s. for brown.

### Acids and Tar Products

Acetic acid is maintaining a steady tone, and a fair business is being done; offers of 80 per cent. commercial are at £36 to £36 10s., and of glacial at about £66. Citric acid has been rather inactive, and the tendency of prices is easy at 1s. 10½d. to 1s. 10¾d. per lb. There has been moderate sales of tartaric acid at down to 1s. 4d. per lb. Oxalic acid keeps steady, and meets with a fair demand at 3½d. to 3¾d. per lb.

A very steady volume of buying is going on in the case of pitch at round £3 per ton, f.o.b. Carbolic acid is quiet at 6½d. per lb. for crystal and 2s. 3d. per gallon for crude. Creosote oil is relatively slow, and prices easy at 6½d. to 6¾d. per gallon. Solvent naphtha is moving off in moderate quantities at about 1s. 1d. per gallon.

## Postage on Samples

### Deputation Visits Postmaster-General

ON Thursday a deputation representing the Federation of British Industries and others waited on the Postmaster-General to discuss the question of the transmission of samples by post, and to bring particularly before his notice the handicap to business caused by the refusal to admit such samples at a cheap rate.

The present regulations, it is complained, give rise to the most ridiculous anomalies. For example, a paint and varnish manufacturer, who wishes to send out specimens of his paints at the cheap rate, may not have specimens prepared on strips and subsequently gummed on to a card, but must have these colours definitely printed straight on to the card. As no printed or lithographed shade can be exactly matched in paint, the concession is not of much value to the trade. Similarly, a dye manufacturer, who wishes to show the quality and colour of his dyes, is not allowed to display them by means of small pieces of dyed wool subsequently fixed to a card.

In certain cases it costs considerably less to send by post a package of samples to, say, Japan, than to an office in the next street in London. In view of the present anomalies, business men feel justified in asking the P.M.G. to consider the immediate re-introduction of an inland samples post, and the extension of the foreign samples post to as large a number of foreign countries as possible. It is contended that the samples post, although unsuccessfully experimented with some years ago, would increase rather than diminish the profits of the Post Office, in spite of the fact that a type of package which at present has to pay the full letter rate would be admitted at the cheaper rate.

### Pedler Research Scholarship

THE Council of the Institute of Chemistry has decided to utilise the income from the legacy bequeathed to the Institute by the late Sir Alexander Pedler for the provision of a scholarship to be known as the Pedler Scholarship. The scholarship will be of the value of £250 per annum, and will be open to Fellows and Associates of the Institute. The scholar will be required to undertake work on a problem or problems to be chosen by the Council. In selecting the problem the Council will have regard to the need for its investigation in the public interest. The Council invites Fellows and Associates to suggest suitable problems for investigation under this scheme, and will be glad to receive such suggestions before Tuesday, July 10. The Pedler Fund Committee will then announce the problem and will invite applications from candidates for the Scholarship. The selected candidate will be informed of his or her appointment before October 1, with a view to commencing work as soon as possible after that date.

### International Superphosphate Journal

THE International Superphosphate Manufacturer's Association has begun the issue, from its propaganda office (Hamburg 26, Hammer Landstr. 231, Germany) of a journal called *Superphosphate*. The first five numbers which appeared were for members of the Association, but henceforward the periodical will be generally available. It will have the object of giving information of all kinds on the use of superphosphates and compound fertilisers in agriculture. Full reports will be given of the work carried on at the Hamburg-Horn Experimental Station of the Association. The contents of the journal are published in English, French, and German, the three languages being given in adjacent columns on each page.

### The John Benn Hostel Ballot

THE tickets for the Boys' Ballot are now ready, and the demand for tickets is very encouraging. Early opportunity should be taken of sending for tickets, which are 1s. each or 10s. for a book of 11. The help of ticket sellers in works and offices and amongst personal friends will be greatly appreciated. Tickets, posters, and complete list of prizes may be obtained from the Ballot Organiser, c/o Sir Ernest Benn, Bt., Bouvierie House, Fleet Street, E.C.4.

## Company News

CANADIAN INDUSTRIES.—This company, formerly known as Canadian Explosives, has declared a dividend of 1½ per cent. for the quarter ending June 30 on the preferred shares.

ASBESTOS CORPORATION OF CANADA.—The directors have declared a dividend of 1½ per cent. on the preferred stock, payable on July 16, to shareholders on the record on June 13.

PHENIX OIL PRODUCTS.—The profits for the period from October 1, 1926, to December 31, 1927, were £56,735. It is proposed to pay the dividend on the preference shares, and to carry forward the remaining £5,740.

BRITISH OXYGEN CO.—A final dividend for the year ended March 31 last of 1s. 3d. per share is proposed, payable, less tax, to the shareholders registered on June 29, making 2s. or 10 per cent., less tax, for the year. Last year the total ordinary dividend was 8 per cent.

ALLEN-LIVERSIDGE.—The report for the year ended April 30 shows that, after charging repairs, maintenance, depreciation, income-tax and all other expenses, the trading net profits were £72,591, to which is added balance brought forward from last year of £7,018. Against this have been charged £25,000 to general reserve and £4,000 to reserve against freehold properties, leaving a balance of £50,609. Out of this balance an interim dividend on the ordinary shares of 5 per cent. was paid on January 27, £15,000, and the preference dividend to April 30, £13,000, leaving an unappropriated balance of £22,609. A final dividend of 5 per cent. (less tax) is proposed, making 10 per cent. for the year, £15,000, leaving to be carried forward £7,609. Allen-Liversidge (Australia) Ltd., paid a dividend of 10 per cent. and a bonus of 8½ per cent. for the year ended December 31, 1927. Since that date there has been a bonus distribution of shares to their shareholders of one share for every three held. Allen-Liversidge Industrial Gases S.A. 1927 (Proprietary), Ltd., paid a dividend of 10 per cent. for the year ended March 31. Allen-Liversidge (India), Ltd., made a loss of £1,625 for the year ended December 31, 1927. This loss has been reserved against in the accounts of the parent company.

## Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

WHITE LEAD OIL PASTE.—The South African Railways and Harbours Administration is calling for tenders to be received in Johannesburg by August 16, for the supply of genuine white lead oil paste. (Reference No. B.X. 4536.)

ESSENTIAL OILS.—The export agents of a firm of manufacturing chemists desire to assist their representative in Vancouver, who is at present visiting this country, to obtain the representation of manufacturers. (Reference No. 4.)

## The Joint Industrial Conference

A FURTHER meeting of the joint conference of the General Council of Trades Union Congress and Lord Melchett's group of representative employers was held on Wednesday, when a joint report was approved in favour of a National Industrial Council. Twenty-four members from each side were present, and the resolution was passed with only one dissentient. It was recommended in the resolution that the representatives of the workers should be the members of the General Council of the Trades Union Congress, and that an equal number of representatives of the employers should be nominated by the Federation of British Industries and the National Confederation of Employers' Associations. The conference also defined its attitude towards rationalisation as follows: The tendency towards a rational organisation of industry and trade, including the grouping of individual units within an industry into larger units, is recognised, and this tendency should be welcomed and encouraged in so far as it leads to improvements in the efficiency of industrial production, services, and distribution, and to the raising of the standard of living of the people.

## New Chemical Trade Marks

### Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks, and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to August 4, 1928.

ANDRESA.

491,230. Class 1. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. I.G. Farbenindustrie Aktiengesellschaft (a Joint Stock Company organised under the laws of Germany). Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers.—May 8, 1928.

IRGATAN.

490,282. Class 1. Chemical substances used in manufactures, photography or philosophical research. J. R. Geigy Societe Anonyme (a Joint Stock Company organised under the laws of Switzerland), 51 and 57, Riehenring, Basle, Switzerland; manufacturers.—April 10, 1928. (To be associated. Sect. 24.)

GRETNA.

491,549. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. The Caledonian Electro-Chemical Company, Ltd., 167, St. Vincent Street, Glasgow, C.2, Scotland; manufacturers.—May 17, 1928.

TORNADOR.

491,882. Class 2. Chemical substances used for agricultural, horticultural, veterinary and sanitary purposes. A. Boake, Roberts and Company, Ltd., 100, Carpenters Road, Stratford, London, E.15; manufacturing chemists.—May 29, 1928. (To be Associated. Sect. 24.)

## International Congress of Photography

THE Seventh International Congress of Photography, of which Sir William J. Pope, F.R.S., is acting as chairman, is being held in London from July 9 to 14. It will meet in the chemistry department of the Imperial College of Science. The committee of the Chemical Industry Club has extended the privilege of honorary membership to all scientific and technical men attending from overseas. On Tuesday, July 10, Dr. S. E. Sheppard, of the Kodak Research Laboratories, will deliver the Hurter and Driffield Memorial Lecture, at the rooms of the Royal Photograph Society, 35, Russell Square, while on Thursday, July 12, Dr. C. E. K. Mees, also of Kodak's, will deliver an address on "Physics in Photography," in the rooms of the Institute of Electrical Engineers, Savoy Place. Among those who will read papers are Dr. F. C. Toy, Mr. T. Thorne Baker, Mr. O. Bloch, Dr. F. M. Hamer, and Dr. W. Clark, as well as a large number of eminent foreign authorities. The address of the Congress is 35, Russell Square.

## Dyestuff Licences for June

THE following statement relating to applications for licences under the Dyestuffs (Import Regulation) Act, 1920, made during June has been furnished to the Board of Trade by the Dyestuffs Advisory Licensing Committee:

The total number of applications received during the month was 548, of which 446 were from merchants or importers. To these should be added 12 cases outstanding on May 31, making a total for the month of 560. These were dealt with as follows:—Granted, 503 (of which 487 were dealt with within seven days of receipt); referred to British makers of similar products, 39 (of which 33 were dealt with within seven days of receipt); outstanding on June 30, 18. Of the total of 560 applications received, 520, or 93 per cent., were dealt with within seven days of receipt.

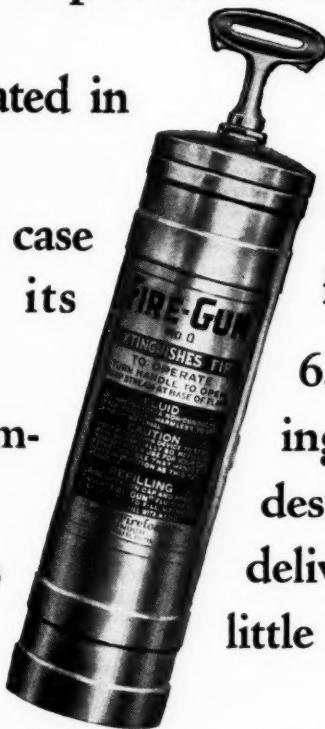
## Low Temperature Carbonisation Developments

LOW TEMPERATURE CARBONISATION, LTD., is said to be negotiating with the Chiswick Urban District Council for the purchase of land at Cubitt's Dock, where it is proposed to erect a carbonisation plant capable of dealing with 2,000 tons of coal a day, the material being brought by sea from Yorkshire.

# For cars, motor boats and electrical risks

*An improved C.T.C. Extinguisher.*

1. It can be operated in any position.
2. Denting of the case does not affect its efficiency.
3. Leaking is eliminated.
4. The nozzle is protected.



The "Fire-Gun" is designed for the combating of those fires which are so likely to occur on cars and motor boats or around electrical equipment. The special liquid used is a non-conductor of electricity.

If you have not yet seen the "Fire-Gun," one will be sent free for inspection and test.

5. No solder, which tends to cause corrosion, is used internally.

6. The double-acting pump is of special design to ensure quick delivery of fluid with little effort.

tion and test. Should the appliance not be retained, the cost of the return carriage will be sent upon application.

The "Fire-Gun" is approved by the Fire Offices' Committee, the Board of Trade and the Metropolitan Police. Foamite Firefoam, Limited, 55-57, Gt. Marlborough St., London, W.1.

**Foamite Fire Protection**  
A Complete Engineering Service  
**Against Fire**

## Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

### London Gazette, &c.

#### Companies Winding Up Voluntarily

JAMES EASTWOOD AND SONS, LTD. (C.W.U.V., 7/7/28.) F. R. Vipond, chartered accountant, 2, Booth Street, Manchester, appointed as liquidator, June 19th.

VALENTINE VARNISH CO., LTD. (C.W.U.V., 7/7/28.) By special resolution, June 8th, confirmed, June 25th. J. J. Baker, chartered accountant, Eldon Street House, Eldon Street, London, E.C.2, appointed as liquidator. Meeting of creditors at Eldon Street House, Eldon Street, London, E.C.2, Thursday, July 12th, at 12 noon.

#### County Court Judgments

[NOTE.—The publication of extracts from the " Registry of County Court Judgments " does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

CAMPBELL BROS., Moorfield Dye Works, Farnworth, near Bolton, art dyers and cleaners. (C.C., 7/7/28.) £25 13s. 8d. May 26th.

COOLEY, Mrs. M. A. (trading as ELLOC CARBIDE CO.), College Lane, Queen Street, King's Lynn, carbide merchant. (C.C., 7/7/28.) £20 16s. 4d. May 17th.

#### New Companies Registered

BRITISH BREDA SILK LTD. Registered as a public company on June 23. Nominal capital, £1,000,000 in 950,000 "A" ordinary shares of £1 each and 1,000,000 "B" ordinary shares of 1s. each. To adopt an agreement between N. V. Hollandsche Kunstzijde Industrie of the first part, S. A. Consortium Industriel de la Soie of the second part, and the company of the third part, and to carry on the business of manufacturers of and dealers in artificial fibres and artificial silk manufactured by the viscose or any other process, silk winders, etc. A subscriber: O. J. Hook, 70, Holmwood Road, Seven Kings, London.

THE CHEMICAL AND ALLIED TRUST, LTD., Gresham House, Old Broad Street, London, E.C. Registered as a "private" company on June 30. Nom. capital, £100 in £1 shares. Investment and trust company, to acquire and hold any bonds, stocks, obligations or securities or shares of companies (particularly such as are connected with chemical and allied industries, etc.). Directors: A. B. Ferguson, D. H. Stacey.

HENRY ELLISON, LTD., Whitechapel Road, Cleckheaton. Registered June 25. Nom. capital, £20,000 in £1 shares. Objects: To acquire the real and personal property forming part of the undertaking of Henry Ellison, Ltd. (incorporated in 1909), and the assets and liabilities in connection therewith, to adopt an agreement with the said old company and its liquidator, and to carry on the business of producers, refiners, storers and distributors of and dealers in petrol, benzole and other oils and spirits, manufacturers of and dealers in chemical products, etc. Directors: H. Ellison, F. Ellison, and H. E. Sugden.

DAVID HINCHLIFFE AND SON (1928), LTD., Spen Valley Oil and Soap Works, Union Road, Liversedge, Yorks. Registered July 2. Nom. capital £5,000 in £1 shares. Soap manufacturers, etc. Directors: P. Fletcher, 26, Church Street, Heckmondwike; S. Webb, G. L. Hinchliffe.

LONDON COALITE, LTD., 3-4, Clement's Inn, Strand, London. Registered as a "public" company on July 2. Nom. capital, £100,000 in 1s. shares. To acquire any interests in inventions relating to the carbonisation of coal, to carry on the business of manufacturing and analytical chemists, manufacturers, distillers and merchants of tar oil, benzol and other products, drysalters, coal contractors and merchants, etc.

## Bradford Dyers' Action

### Case Before Mixed Arbitral Tribunal

In Division "B" of the Anglo-German Mixed Arbitral Tribunal, on Friday, June 29, Dr. Klaestad, the neutral president, delivered an interlocutory decision and issued directions in the case of the Bradford Dyers' Association against S. H. Sharp and Sons, G.m.b.H., of Kingersheim, Alsace, who carried on the business of dyers and finishers. The claim was for £30,964 which had been invested by the trustee appointed by the German Government during the war, and claimants also asked for compensation, to be assessed by the Tribunal respecting the application by the German Government of exceptional war measures. The earlier part of the proceedings in the case was reported in THE CHEMICAL AGE of June 23. In June, 1919, the claimants sold their shares in Sharp and Sons, G.m.b.H., to a French company, Blanchisserie et Teinturerie de Thaon, for the sum of £110,000, expressly reserving their rights to compensation for damage caused by the sequestration.

The present claim was brought by the claimants against the German Government under Article 297 of the Treaty of Versailles, and consisted of a number of items which the decision proceeded to enumerate. The German Government Agent submitted that the claimants were not interested in Sharp and Sons on January 10, 1920, having sold all their shares to a French company in June, 1919, and that only this company could claim under the Article of the Treaty.

### The Decision

According to Article 297 (e), the nationals of the allied and associated Powers were entitled to compensation in respect of damage or injury inflicted by the application of exceptional war measures upon, *inter alia*, any company or association in Germany in which they are interested, so claimants (said the Tribunal) were entitled to compensation. They could accordingly claim only for the damage they had suffered themselves as such shareholders. In redrafting this part of their claim, the claimants must further bear in mind that their claim was to be limited to injury caused by exceptional war measures. In connection with this redrafted claim, the claimants were directed to state all the material facts on which they intended to rely.

As to the claimants' claim for £500 on the ground that the factory premises were said to have been used for the quartering of German troops, the claimants were directed to produce all material facts on which they intended to rely. Claimants' final claim of £6,056 was in respect of cash assets, or alternatively as compensation on the ground that the compulsory administrator of Sharp and Sons, after the removal of the motors, was alleged to have kept on and paid a considerable and unnecessary body of workmen. The claimants were directed to elucidate this part of their claim, and the respondents were requested to produce a statement dealing fully with the various contentions submitted by the claimants.

### Chemical and Dyestuff Traders' Meeting

At the annual general meeting of the British Chemical and Dyestuff Traders' Association, Ltd., held in London on Thursday, June 28, the following were elected: President, Mr. Victor Blagden; vice-president, Mr. Fredk. T. T. Reynolds; chairman, Mr. A. F. Butler; vice-chairman and hon. treasurer, Mr. S. J. C. Mason; executive council members, Mr. H. A. Berens and Mr. G. A. Hamilton; and hon. auditors, Mr. G. A. Hamilton and Mr. A. Hughes. These elections were not in accordance with the nominations, and it will be necessary to confirm them in order to conform to the Rules and Articles of Association. For this purpose a special general meeting of members will be held at the offices on Thursday, July 19, at 2.30 p.m. The executive council regret to inform members that, acting on medical advice, Mr. F. T. T. Reynolds was unable to accept election as chairman. This necessitated a revision of the elections to the various offices. At the annual general meeting a resolution was proposed and carried unanimously expressing regret at the cause of Mr. Reynolds's withdrawal. On the unanimous vote of the meeting, Mr. Reynolds was elected the first vice-president of the Association, as a token of appreciation of his valuable services to the Association and to the trade generally.

